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THE NATURALIST;

ILLUSTRATIVE OF THE

Animal, Vegetable, and Mineral Kingdoms,

WITH

PORTRAITS AND MEMOIRS OF EMINENT NATURALISTS,

AND ENGRAVINGS ON WOOD.

"Nothing can be unworthy of being investigated by MAN, which was thought worthy of being created by GOD."—ROBERT BOYLE.

EDITED

BY NEVILLE WOOD, ESQ.

VOL. V. JULY—SEPTEMBER, 1839.

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ADDRESS

TO THE READERS OF "THE NATURALIST."

On the completion of the third year of the existence of this Journal, and more especially on the removal from Doncaster of the printer hitherto employed, it has become necessary to inquire into the expediency of discontinuing the work, or of transferring it to another printing-establishment. The result of this enquiry has been, that the expenses of the Magazine still so greatly exceed the receipts, as to compel the relinquishment of the undertaking; and it is therefore our duty to state, that The Naturalist will close with the present No.

In taking this necessary step, it is pleasing to reflect that the error of the projectors of The Naturalist lay, not in anticipating ample support from the public for such a work, but in conceiving that it could succeed if printed in the *country*. From naturalists of the first rank—wholly unknown to the Editor save through their public services—has been received not only abundant support, but also unsolicited approbation; and the approval of these eminent individuals, added to the love of Nature imparted by our pages to many who had previously been ignorant alike of the importance and the attractions of Natural History, proves that our labours have not been thrown away. Our failure, therefore, cannot be attributed to non-appreciation of the Magazine on the part of the public: on the contrary, from numerous communications

on the subject received both from subscribers and from booksellers, we feel perfectly satisfied that it has been caused solely by the circumstance of the periodical being printed in the *country*. Without considerable assistance from the London publishers, a Magazine has at the present day little chance of success; but with the potentates of Paternoster-Row in opposition, failure is inevitable.

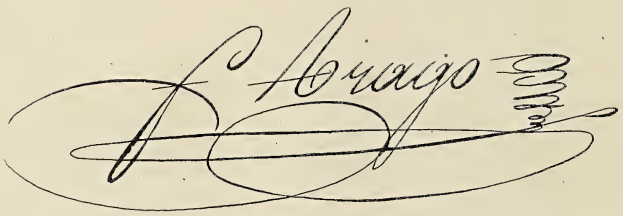
The work, it may be urged, might even now be removed to London; but we reply that the error has been discovered too late, for the trade-opposition, once in existence, is not likely soon to subside. That there is room for a work of similar character to THE NATURALIST, and that it would be properly supported by the public—in absence of the opposition with which we have contended—we, however, still believe, and fully hope to see the plan carried into effect at no distant date.

We shall not, in compliance with the time-honored custom among our editorial brethren, conclude by thanking subscribers and correspondents for their assistance to THE NATURALIST; for they have, we trust, been actuated by a sincere wish to advance and diffuse Natural Science, and not by the desire of conferring upon ourselves individually any supposed favour.

Gratified with the amount of benefit we have already been enabled to render to the cause, and hoping at a future day to have it in our power still further to advance it, we for the present take leave of our fellow-labourers in the same field.

August 26, 1839.

Lithographied from Nature by Rhodes Naturalist.
On Stone by Weld Taylor.



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THE NATURALIST.

VOL. V., NO. XXXIV.—JULY, 1839.

LOCAL OCCURRENCES IN NATURAL HISTORY;

PRINCIPALLY RELATING TO THE BANKS OF THE SEVERN, AND THE WESTERN DISTRICT OF WORCESTERSHIRE.

In Letters to Neville Wood, Esq.

BY EDWIN LEES, F.L.S., &c.

LETTER II.

(Continued from Vol. IV., p. 57.)

"The geologist will deem it incumbent upon him to examine with minute attention all the changes now in progress on the earth, and will regard every fact collected respecting the causes in diurnal action, as affording him a key to the interpretation of some mystery in the archives of remote ages."—LYELL'S *Principles of Geology*, Vol. I., p. 242.

MY DEAR SIR,—In my preceding letter I alluded to the fossil bones which occur in several spots in this district, mixed up with the beds of diluvial gravel—or "drift" as more recently termed—which occupy a considerable extent of surface, and on the Southern side of Stourport, not far removed from the Severn, exist in connection with a range of Sand-hills, extending for some miles in a North-Easterly direction. This spot—named Mitton Common,* and forming part of what was once, previous to a local enclosure act, a far more extended waste—has so strange an appearance, isolated as it is in the midst of a fertile tract of country, that one can scarcely resist the conclusion that it is a relic of an ancient sea-beach, once extending its desolate aspect far and wide around. It is one entire waste of Sand, varied only by bog and pool, and (before the Summer heat absorbed them up) the few plants that vegetate in such an habitat—as *Aira canescens, Nardus stricta, Juncus squarrosus, Gnaphalium minimum, Trifolium arvense*, and *Plantago coronopus*. In the gravel-beds excavated at this spot, numerous zoophytic

* It was formerly part of Hartlebury Common, and is occasionally so called now, but in fact lies adjacent to Lower Mitton. It is rather curious that the Act of Enclosure directs that this part of the Common to which I allude, shall *never* be enclosed.

Polypifers have been found, often so covered with minute triturated gravel silicified to the fossils, as to suggest the idea that this animal gluten, which has thus acted upon the water-worn fragments, must have oozed forth from the living zoophyte. As far as I have been able to learn, none but marine remains have been found here.

Before venturing an opinion as to the way in which the fossil bones of quadrupeds, mentioned in my first letter, came in company with the gravel, it is necessary to consider the mineralogical substances of which this gravel consists. The pebbles are for the greater part referable to what were formerly termed "primitive rocks," but now, more correctly, igneous, or pyrogenous,* as an examination of their constituents no longer admits of any doubt that they owe their origin to the longer or shorter action of intense heat. The varieties of these consisting of Granite, Syenite, Greenstone, Serpentine, Porphyry, Quartz, Felspar, Basalt, Jasper, Chalcedony, &c., are so numerous, that a collection might be formed by any mineralogist, as has often been remarked, from a single gravel-bed—*e. g.*, that of Kempsey, and very beautiful specimens of Chalcedony are often found. But in addition to these, though less numerous, are pebbles derived from the "Silurian" and secondary formations, with their attendant fossils, and masses of Breccia are by no means uncommon, with Ochre, and Red Sandstone. Dispersed over the top of the beds, Gryphites and other battered shells belonging to the Lias are often found; but Flints are rare, and *Chalk* is entirely absent. Neither are there any fragments of more recent deposits than the cretaceous. Nothing appears among the materials of this gravel from which the presence or vicinity of Man or any of his labours can be inferred, as would undoubtedly be the case among ordinary river gravel of the present day.

I am not here called upon to give any opinion as to the date or extent of the historical deluge recorded by Moses. Naturalists were formerly anxious to make this gravel a silent momento of that great disturbance, but they have gradually retreated from the defence of such an untenable hypothesis; and, wherever else the inquirer may search for its traces, it appears to me that there are no perceptible vestiges of it here. But the veracity of Moses is not at all involved in this. The time is past when the regions of scientific inquiry are to be strictly preserved from the incursions of all whose eyes are not bandaged with the Jewish phylacteries; for I have long been of opinion that it is about as reasonable for an Egyptian traveller of the present day to expect to find traces of the granaries of the patriarch Joseph in that country, as it is to insist upon the geologist's turning

* "Rocks are divided into Hydrogenous, or of *watery* origin, and Pyrogenous, or originating from *heat*."—Professor Phillips's *Guide to Geology*. The old Wernerian theory that *all* rocks have been deposited from a sedimentary fluid, is now universally abandoned.

round at every step he takes to be quite certain that he is still within ken of the cosmological ark indicated in what Professor PHILLIPS has termed certain "dark and ill-understood passages of the Pentateuch."* It is in fact only an extension of the same principle that in the "dark ages" gagged poor GALILEO, when the Churchmen of his day insisted that the foundations of the earth were literally *immoveable*.† Of course the theologist, after a candid inquiry into the views and arguments of scientific observers, will harmonize the statements of Scripture with actual phenomena as far as he can, or the present state of knowledge admits; but it ought to be generally understood, and in fairness agreed, that the geological inquirer is not bound to undertake this task. Agreeing with Dr. BUCKLAND,‡ that the Mosaic narrative was primarily intended to declare that the true God formed the world "*in the beginning*," in opposition to heathen fables, there can exist no necessity for the inquirer to imagine absurdly any "pre-Adamite" races of men on the one hand, or be fearful that his inductions may not literally coincide with the received text of the Pentateuch on the other.

As the subject of "the deluge" is so familiar to our thoughts, and it so incessantly recurs in geological investigations, from the unscientific application of the term "*ante-diluvian*," I may be excused for here introducing a notice of it as connected with the subject I am discussing. The passage I thus quote from myself was given to some young friends, neophytes in the study, who, of course, wished to understand something of the so-called *diluvial* beds.

"We have shown from the examination of the immense collection of marine relics enclosed in the fossiliferous strata, and which often constitute very lofty eminences, that our present land was not merely *transitorily* covered by the waters of an inhabited ocean, but that it has actually been formed of materials collected through periods of uncertain length, in the bosom of an aqueous abyss. We have also been led to the conclusion, that certain powerful igneous agents have elevated our present mountains, and with them to a certain extent the adjacent islands and continents—the bed of the ocean has thus been proportionately depressed, and what was once the bottom of an ancient sea, now appears

* Professor PHILLIPS's *Treatise on Geology* in LARDNER's *Cab. Cyclop.*

† When we read that an Arabian named OMAR EL AALEM, or "the learned," who flourished in the tenth century, and wrote a work *On the Retreat of the Sea*, was obliged to go into voluntary banishment from Samarkand, because his system was declared to be contrary to the *Koran*, we justly smile at such an instance of priestly bigotry. But alas, as COWPER says—

"The laugh *applied*,
May make us laugh on t'other side."

Since, to say the least, the *spirit* that called for the recantation of poor OMAR, though perhaps disguised, is far from being extinct.

‡ *Bridgwater Treatise*, p. 33.

above the surface of the water as habitable land. Whether the bottom of the present ocean once constituted the dry land of a more remote period, can at present only be guessed at.

" Now it is very important to bear in mind, that the land we now inhabit was formerly the *permanent* bed of the sea, because it must greatly modify our ideas as to the formation of the gravel masses and boulders upon it, as well as respecting the osseous relics found dispersed among this 'diluvium.' These have been usually termed 'ante-diluvian,' an anomalous and improper expression, and not in keeping with the correct language of science. For it is at once begging the question, and pre-supposes the deposition of these *fragmenta vetusta* from the waters of that great catastrophe which Moses has recorded as overspreading the earth. We have all, from our infancy, so drank in the idea of the flood, Noah's ark, the Dove, the rainbow, and the subsiding of the waters, that these vivid images, impressed upon our early associations, render us ever open to the suggestion that whatever marine relics are presented to our notice on dry land, must be of necessity relics and mementos of the flood. But inductive Geology requires us to clear our eyes with the euphrasy of truth, to rid ourselves of the fairy colourings of early impressions, and proceed in our inquiries not with the determination to screw up all we see to preconceived notions, but, on the other hand, let those notions yield and arrange themselves in accordance with true philosophy. It was long before Astronomy could shake off the incubus of free inquiry that clogged its wings from the sun appearing itself to move from East to West, and the consequent immobility of the earth, in strict accordance, it was conceived, with passages of Scripture; although we now all acknowledge that the wisdom of Deity is in fact more manifested in the movement of the earth from West to East. If, then, without doubting the historical fact of the deluge itself, we accustom ourselves to doubt of the supposed relics of its existence being really such, we shall do much more for the real advancement of scientific knowledge, and equally extol the power of God, as if we seized upon every shell, bone, or old tooth we could find scattered about, as undoubted evidences of the Mosaic flood, in the spirit of the Turks and Armenians, who say that the remains of the ark itself still exist upon Mount Ararat. I dwell upon this more particularly, because we seem ever to be harassed with the idea that we *must* find tokens of the deluge lest our inquiries should be placed within the verge of the dreaded '*Judex Expurgatorius*,' as not coinciding with the strict views of the enunciated canon of the Church; and because, from our early familiarity with the Bible, we naturally *wish* to aid our early associations by doing so. But we forget two things,—1st, the distance of the event; 2ndly, the evident idea that if the Deity had designed that fact to be ever present before us, He would have caused more certain and vivid evidences to have saluted our eyes than mere water-worn masses

of gravel. The ruins of the antediluvian cities, and the remains of their overwhelmed fabrics, or some memorial of the arts they practised, would have remained before us;—but, at all events, it must be remembered that the absence of any physical relics of an historical event, will by no means vitiate the truth of the fact—we believe in the former existence of great Nineveh though its actual site is uncertain; nor do we the less believe that the patriarch JOSEPH once held the vice-regal authority in Egypt, because no traces of his name or habitation are now to be found there.

"According to chronology, nearly 5,000 years have elapsed since the subsidence of that deluge recorded by MOSES. Now we must be satisfied that this country was *previously* to that event *dry land*, before we can with any propriety expect to behold traces before us of the Mosaic deluge; for if it were then the *bed of the sea*, it would be of course absurd to expect that a land flood should have left any permanent evidence of its power *there*.* Even if it was at that time, or a short time prior thereto, raised above the waters, it is obvious that it must be very difficult, at this distant period, to distinguish between pebbles rolled on the shores of the ancient ocean, and any that might have been dislodged by violent but temporary aquatic force from any mountains, and then mixed up with the marine detritus previously deposited. This is instructively shown by Mr. MURCHISON in his recent work on the *Silurian System*, where he remarks, that 'it is not always practicable to separate the more ancient or local drift from the more recent;'† and he instances the caution required in distinguishing local from far-transported detritus, by reference to the Quartz-pebbles and fossils of the carboniferous Limestone, now found in abundance on the Eastern side of Worcestershire, and which have not been drifted from any distance, but are merely the result of the disintegration of calcareous conglomerate beds in the New Red Sandstone, whose transport took place at the time those peculiar deposits were imbedded.

"If an extensive deluge were now to sweep over the Continent of Europe and its adjacent isles, and involve the cities of London and Paris in the same calamity, without any ultimate rise in the level of the ocean; after the waters had retired, evidences of the wide-spread desolation would long appear in the remains of drowned cattle and men, and the overthrown structures, bridges, and columns that would lie dispersed through the desolated region for ages. But it is obvious, that if Europe were overwhelmed by an uprising of the bed of the Atlantic ocean, scarcely an evidence of the catastrophe would be visible to tell its dreary

* Since the publication of Dr. BUCKLAND's *Reliquiæ Diluvianæ*, a great change has taken place in the opinions of the majority of geologists; and hence the "*diluvium*" which was formerly considered as *swept over pre-existing land*, is now generally admitted to be *submarine* detritus.

† MURCHISON's *Silurian System*, Part i., p. 529.

tale; while of course whatever the bed of the Atlantic unfolded to view in the strata formed while it was shrouded in the sea, could have nothing to do with the perished cities and multitudes ingulfed within the late advancing waters. Now it has never been pretended that any positive remains of the antediluvian tribes have ever been found; and if they perished by any change occurring in the ancient bed of any portion of the sea, it must be extremely uncertain, if not altogether improbable, that at the present day any mementos, other than historical or traditional, should exist before us of that event."

But to return to the gravel-beds that have furnished the text of this digressive discussion. Their contents seem to indicate the existence of both igneous and sedimentary rocks, from which these fragments have fallen, and from longer or shorter distances been transported, to be finally ground into smoothness and rotundity by the incessant action of dashing water, referable only in fact to the furious surges of the ocean. That the sea has been here, the shells found by Mr. ALLIES on the Marl below the gravel, and determined to belong to *existing species*, prove beyond a doubt; nor can the transport of the gravel itself, and its trituration, be owing to any cause less powerful than the force of marine currents. Neither can it be allowed that the *transient* passage of the ocean over the country would be sufficient to account for the formation of these masses of concrete, which have every aspect of the slow, quiet, but constant accumulation of many years.

If, however, we contemplate here an ancient but deserted oceanic territory, it may admit of question how near land existed, in what quantity, and under what condition and circumstances. Part of it in the form of isolated rocks was probably at hand; for, as before noticed, fragments of Graywacke or Trasition fossils occur, as well as Syenite, apparently of the same kind as that at Malvern; but it is very dubious whether any Continent or land *inhabited by animals* lay *very* near. If not, from whence are derived the fossil bones before referred to? It is not easy to answer this question satisfactorily. But surely, if the gravel was transported along the bed of the ocean, and deposited there in shoals, the teeth and bones now found amongst it must likewise have been carried there by water, and cannot reasonably be supposed to be the remains of animals which have died on the spot. I exclude the bones found in Limestone caverns from this conclusion. As even in the present day it has been noticed, that fruits from the West-Indies have been thrown upon the coasts of Ireland, Scotland, and Norway,* it is easy to perceive that the carcases of dead animals may in former times have been wafted very considerable distances from the localities they occupied when living. It is indeed impossible to say how far North the range of the

* LYELL's *Geology*, Vol. II., pp. 416—17.

larger animals may have originally extended, especially where their empire was undisputed by Man, and they must undoubtedly have been far more numerous than in the present day. Geographical circumstances now interpose to limit zoological provinces, but different circumstances would permit other results; and if Africa and Europe were ever connected, the huge *Mammalia* of the former, undisturbed in their migrations by a superior power, may have roamed over spots from whence, were the communication possible now, civilization would stop their progress with its terminating spear. Many geologists seem anxious to refer the fossil bones of the gravel-beds to a period "anterior to the creation of Man," merely on the ground of the absence of human remains. But there is no absolute proof in this, as none of the human family might at that period have penetrated in this direction; for it is evident that, in early historic times, men ignorant and timorous in nautical matters, trusted themselves rarely to the ocean, but crowded together with anxious timidity, separating and migrating only like the inferior animals, when necessity imposed its inexorable mandate.

I have before observed, that the matter of the gravel is frequently mixed up with battered shells of *Gryphæa incurva*, as well as a species of *Unio*, evidently washed out of the adjacent Lias formation, which is an additional argument that the ocean waves were dashing upon a rocky shore, and accumulating the disintegrating spoils of the pre-existing strata with which they came in contact. In this case, then, it seems most consonant to analogy to suppose that the fossil bones of the Mammalia found in the gravel, must with other transported debris have been brought by oceanic currents, probably from considerable distances, and during long intervals of time. I shall subsequently recur to a medium for the transport of bones as well as other matter to far distances by a very easy process, supposing heat and cold to have alternated in former periods upon the earth, as they have ever done in times within the historic notice of mankind.

Since penning the above, Mr. MURCHISON's great work on the *Silurian System** has been published; and as it bears especially upon the point I have been adverting to, and is descriptive of a large district of which I have only touched upon a part, I cannot avoid recurring to the views of so accomplished a geologist, after the extensive survey taken by him. He conceives that "all the loose detritus which covers the surface of large tracts in South Salop, the North-West of Worcestershire, the whole of Herefordshire, and the adjoining Welsh counties, may be called *local*, because it has been derived either from the mountains forming the North-Western limits of the country, or from the disintegration of rocks occupying the very districts where the materials are found."† Thus Siluria (except on its Northern and Eastern borders) being "exempted from all the far-

* *The Silurian System*, by R. I. MURCHISON, F.R.S. 4to. † Ibid, p. 510.

transported detritus so prevalent in the surrounding parts of Great Britain, the region cannot have been visited by a great deluge flowing from other countries, *after its features had been determined and its present vallies excavated.*"* In the local drift of the region as previously limited, it does not appear that any fossil bones have hitherto been met with. But on approaching the great valley of the Severn and the New-Red-Sandstone formation, "we enter districts where a large portion of the accumulations are *associated with others* which have been *transported from Cumberland, and probably even from Scotland.*" It is in gravel associated with this "Northern drift" that the fossil bones formerly alluded to have been found. The "Northern drift" is traced by Mr. MURCHISON from the coast of Lancashire, where, as at Preston, it is 150 feet thick, over a very large portion of Cheshire, Staffordshire, and Shropshire, "until it reaches the vale of Worcester, where it occurs in the form of a Delta, included between the Silurian [Malvern and Abberley] hills on the one side, and the Cotteswolds on the other, both of those hilly ranges being entirely free from it."† Throughout its course the "Northern drift" is distinguished by Granite boulders, precisely similar to rocks in Cumberland and Scotland, and it is also associated in many spots with marine shells of *existing species;* so that Mr. MURCHISON remarks,—"so numerous, indeed, are the localities over the region in question, where *Northern boulders* and *modern sea-shells* are grouped together, that no doubt can exist that the phenomena were due to a *submarine agency* extending over a very large region." This "recently-submerged tract" comprehends the Eastern parts of Lancashire, all Cheshire, the North of Salop, and large portions of Stafford, Worcester, and Gloucester, which, forming an arm of the sea between Siluria and other portions of Britain, communicated with the main ocean Southward, by what Mr. MURCHISON denominates the "Straits of Malvern." Thus we are presented with a great Delta extending 60 or 80 miles Southward from the shores of the ancient Cumberland, and acting upon the disintegrating members of the New-Red-Sandstone and Lias; and "in which blocks of Granite, as well as other ancient rocks, were commingled with the marine shells at the bottom of the sea."‡

I have adduced the deliberate and recorded opinion of Mr. MURCHISON as confirmatory of preceding statements; and explanatory of the aspect the district I am examining must have *formerly* had, and which in several localities it still displays, as in the case of *Mitton Common*, mentioned in the commencement of this letter, of a sandy tract but little elevated above the sea, and recently exposed to its occasional incursions at high tides.§ Under such circumstances it is easy to

* MURCHISON, p. 522. † Ibid., 528. ‡ Ibid., 537.

§ Even now, at Spring-tides, the Severn is affected so much by what is commonly called the "boar," or rush of the water up the stream from the sea, that at the Lower Lode Ferry, half a mile only from my residence, and above fifty miles from the Bristol Channel, at King-road, the

conceive that long after the desiccation of the marine surface, the country might exist in an intermediate state, with broad rivers, strings of lakes, expansive meres, and marshes and morasses comparatively dry in Summer, and again submerged as autumnal rains or very high tides occasionally exerted their influence. I have noticed, in a few spots dispersed among black bog earth, as at Grimley, three miles North of Worcester, a gravelly Silt of a silicious kind, which seems to indicate the former existence of large pieces of fresh water in the localities where it occurs. That bogs have remained for a long period in these spots posterior to the partial drying up of the meres, is very evident; and the Mole in the present day points them out in sable trains and hillocks. I have also seen specimens of rounded Flints from the parish of Ombersley, seven miles North of Worcester, which were said to be widely dispersed over a field there, and are probably to be referred to a similar origin; for a friend who was well acquainted with the spot, informs me that thirty years ago, previous to the enclosures, the vicinity of Ombersley abounded in boggy spots and isolated pools, swarming with uliginose plants, now entirely eradicated. Indeed the ancient state of this tract of country must have been that of a marshy district but little elevated above the level of the ocean, to whose inroads, probably, it was at intervals subjected from high Spring-tides, while its waste surface was dotted with spreading lagoons. Even now, the Longdon and Eldersfield Marshes in the vicinity of Upton-on-Severn, exhibit spreads of water in the autumnal and Spring seasons, for which the low level of the land affords no adequate drainage, their intersecting pools and ditches fringed with *Hippuris vulgaris* and *Scirpus maritimus*. That great part of Worcestershire was at one time in a similar state, appears from the relics of extensive bogs that yet remain, as Feckenham Bog, East of Droitwich, where Mr. Purton found the marine plants *Schœnus nigricans* and *Cladium mariscus*.* The demesne and grounds at Croome, the residence of the Earl of Coventry, now celebrated for its gardens and arboretum, appear to have exhibited an analogous aspect to these bogs about a century ago; for Mr. Darke, in the first Agricultural Survey, published in 1794, says that, half a century previously, that part of the country was nothing but "a morass."† Every old rustic one meets with, is still full of fearful tales of that "Hobbimy's Lantern," or *Ignis Fatuus*, which in his youthful days was such a fertile source of terror and annoyance, leading the bewildered and benighted wanderer far away from his known course, and at last, perhaps, after a long chace, plunging him knee-deep in water, comfortably fixed in palpable darkness in some muddy morass. This species of "march of

head of water was three feet in altitude on the 15th of April last, and nearly overwhelmed a lady of my acquaintance, who was standing on the brink of the river, unconscious of any danger.

* Purton's *Midland Flora, in loc.* † Pitt's *Agric. Survey of Worcester.*

intellect" the advance of drainage seems in the present day to have brought to a complete halt; the once active ghost is now laid quiet with the extinguishing of "Hobbimy's Lantern;"* and as the bogs and morasses have been drained and cultivated, *Puck*, *Mab*, and *Friar's Lantern* have all resigned their pretensions to any further feats among the dull matter-of-fact operatives, who have given up the old honoured "nut-brown ale," in exchange for the "total-abstinence principle."

Plants, however, often distinctly intimate the former or recent aspect of any district; and the numerous marine species that still occur so far inland, seem to indicate the not remote time when the waves of the ocean spread their surges over the now green and luxuriant meadows of the vale of Severn. In the vicinity of the residence from which I date, *Samolus valerandi* and *Rumex maritimus* occur, and on the common between the Rhyd and Great Malvern, a rare saline plant, *Bupleurum tenuissimum*, has been gathered.† The front of the Red-Marl precipice at Tewkesbury, called the Mithe Tout, abounds with another coast plant, *Smyrnium olusatrum*, in immense profusion; and the wood at Sarnhill, on the opposite side of the river, is filled with *thickets* of the fœtid Iris or Gladwyn (*Iris fœtidissima*), a plant that affects its most luxuriant development in the vicinity of the sea, and is of rare occurrence remote from the coast. Lastly, in the two orchards next adjoining my present residence at Forthampton, on the West bank of the Severn, opposite Tewkesbury, I last Summer (1838) observed such quantities of the Parsley-leaved Water Dropwort (*Œnanthe pimpinelloides*), as to form a considerable ingredient in the *hay* of the meadows, and I noticed all the hedge-banks of the vicinity to abound with it, in the compass of about a mile. Now this plant is generally confined to salt-marshes, and is a very rare inland product.

Having thus dwelt so much at length to establish the original *sub-marine*, and next *littoral* aspect of the district I have ventured to dilate on, I must reserve for another communication the consideration of the alluvial soil deposited by the Severn, and the present aspect presented by its stream.

I am, &c. &c.

E. L.

Forthampton, near Tewkesbury,
April 30, 1839.

* See the curious feats of "*Hob and his Lantern*," mentioned by Mr. J. Allies in his pamphlet on the Old-Red-Sandstone, from papers read to the Worcest. Nat.-Hist. Soc.

† By William Addison, F.L.S., of Malvern.

ORNITHOLOGICAL SELECTIONS AND CRITICISMS.

By William Leslie Russell, Esq.

In the following pages I propose continuing (from Vol. IV., p. 343) my "selections and criticisms," only premising, as before, that any corrections or omissions deemed expedient by the Editor, will not fail to meet my approbation.

Among the numerous anecdotes related by authors, respecting that most amusing bird the Parrot, take the following quaintly-related one from Willughby's *Ornithology*:—

"I shall not think much to set down a very pleasant story, which Gesner saith was told him by a certain friend, of a Parrot, which fell out of King Henry VIII. his palace at Westminster, into the river of Thames that runs by, and then very seasonably remembring the words it had often heard some, whether in danger or in jest use, cried out amain—*A boat, a boat, for twenty pound!* A certain experienced boatman made thither presently, took up the bird, and restored it to the king, to whom he knew it belonged, hoping for as great a reward as the bird had promised. The king agreed with the boatman that he should have as the bird being asked should say: and the bird answered,—*Give the knave a groat!*"

Now I suppose no point is considered more questionable in the whole range of Ornithology, than that which inquires whether or not birds are, in any degree, endowed with the faculty of reason. A multiplication of well-attested anecdotes similar to the above, is by some considered to settle the dispute in the affirmative: though, for my own part, I think the conclusion has been hastily made, and that such instances have but little to do with the matter. No doubt Bluebeard's bird had observed that the cry which it uttered on falling into the water, had been uttered by men in perillous circumstances. It would, therefore, either be a matter of *observation*, or else a cry which it had been accustomed to employ when in danger. A curious circumstance witnessed by myself will serve to illustrate this position. In the year 1830, happening one fine Summer's evening to pass St. Catherine's Docks, I heard a loud and sudden splash in the water, and immediately afterwards—singularly enough—cries of "Fire! fire! go fetch the engines! fire! fire! House a-fire! I'm but a lodger!" and so forth, which I soon found proceeded from a Parrot chained on deck of the very steamer from which a child had, a few moments before, fallen into the water. Now had there actually been fire in the case, the bird would at once have been supposed fully aware of the import of the phrase it uttered, and forthwith have been pronounced as great a

marvel as the "learned Pig," or the "Reading Fly." Most probably "poor Poll" had been taught a well-known ditty of which the above words form a part; and by repeating them under the circumstances mentioned, at once proved that they were delivered "by rote." Of course this anecdote can only be employed as positive evidence respecting the individual bird concerned; but at the same time it may serve as a salutary caution to those naturalists who frame hasty and crude theories from a few ill-attested "facts."

Many years ago I was acquainted with a tippling physician in Germany, and as that worthy gentleman has long since been "numbered with his fathers," I believe the following circumstance may be narrated without fear of bringing down an action for libel on the Editor of *The Naturalist*, even supposing I had mentioned names. I was one evening at a party composed of ladies and gentlemen of various countries, and where scandal seemed to form as regular food for the inmates of the house as in any small country-town in England. My friend Dr. H———, who was addicted to the one great vice I have mentioned, of course always came in for his full share of abuse, and on the evening in question the remarks on his weakness were free and loud. I beheld a "talking Parrot" in one corner of the saloon; and, remembering our English volumes containing legions of Parrot-anecdotes, I could not but fear that some day or another mischief would result from the out-pourings of its throat. Though a talking Parrot, however, it appeared to be in a listening mood. Well, in course of time Dr. H——— was duly announced by the servant, and while the man of medicine was stalking through the passage, some one observed in joke that *two* bowls of punch would be required now that the physician had arrived. The parlour-door was thrown open, Dr. H——— was again announced, and all were on the eve of giving him as warm a greeting as if he were the bosom friend of each individual present, when wicked Poll, in his loudest key, shouted out,—"Two bowls will be required for Doctor H———, two bowls will be required for Doctor H———, Doctor H——— and six bottles for ever!" &c. &c. In short, the Parrot was perfectly elated by the appearance of my friend, and he continuted to vociferate the above and other equally complimentary phrases for several minutes without intermission. Reader! spare me the task of relating what ensued. Suffice it to add, that the Doctor never again set foot in that house, that no individual then present ever enjoyed his further friendship, and that in an hour's time every person of any respectability (!) in the town had heard how the Doctor had been put to confusion by a bird. But enough of Parrots for the present.

In Derbyshire I am told that the following method of catching the Bullfinch is practised with success by the country people. Two or more Bullfinches being observed to alight on a hedge, a boy stands on each side of it, and both the urchins frighten the poor birds until they drop down on the ground, and are captured.

I have never seen this plan carried into effect. At first it seems very like a tame-Bullfinch-let-loose affair; but I think it just possible that it may be true, as the Bullfinch, though very shy, displays considerable unwillingness to quit the hedge in which it may be concealed. Besides being a "hidling" bird, the wings of the Bullfinch are short, and little calculated for lengthy flights. It is, therefore, a peculiarly stationary species in all the countries it inhabits.

There is now at No. 36, Princes-Street, Leicester-Square, London, a "Baron VON DER HUTTON," who offers piping Bullfinches and Canaries for sale; but the worthy Herr is so singularly morose that his real wish seems to be to *prevent* visitors from purchasing his little prodigies. Is this the man respecting a visit to whom in 1835 Mr. NEVILLE WOOD furnishes so amusing an account in his *British Song-Birds* (p. 397), or is the occupation of teaching Bullfinches to pipe a peculiarly souring process to the temper?*

The late Baron TERNAUX, says an anonymous writer, decorated his grounds at St. Ouen, near Paris, with splendid looking-glasses, which reflected the varied landscape, and produced a very fine effect. One day the gardener found one of the Peafowls before the glass, with its tail displayed, and apparently contemplating itself with great satisfaction. The gardener let it remain there until he went round the grounds; he returned in a few hours, and found the Peacock still before the glass. He now drove it away, but it as constantly returned. He at length took it to the aviary; but the Peacock, as soon as it could get out, went back to the mirror, refusing all food for the delight of beholding itself in the glass. The Baron at last suffered it to remain, ordering food to be placed before it near the glass; but it did not touch it; and, on the third or fourth day, the bird of JUNO was found lying dead before the glass. A second Peacock, which had never seen the mirror, was brought, that it might be observed whether the effect would be the same; when it was found that it was as proud of viewing its own image as its predecessor; and, to prevent its meeting a similar fate, it was not allowed access to the grounds.

The above anecdote was communicated to the narrator by the Baron himself, on his last visit to London. The feeling of the birds was probably the action of the organ of Love-of-approbation, according to the phrenological system. It thus appear, that the Peafowl is a perfect NARCISSUS. The same phenomenon has been observed in other kinds of birds, as Goldfinches, Turkeys, &c.; but in some cases the idea of the presence of a companion must be the dominant feeling.

* VON HUTTON is the man we visited; and his advertisements may frequently be seen in the *Morning Chronicle*, and other London daily papers. His occupation and his appartment have known no change for the last four years.—ED.

Sir JOHN BYERLEY has given an account of the antipathy of a male black Swan and a female white Swan which had been placed together. Mr. JAMES FENNELL adds another instance of a similar kind; and as I have in the Regent's Park frequently seen the black Swans hunted about and fairly driven away by their fair neighbours while feeding, it is probable that such enmity would always exist. I have also noticed, in the same park, that the parent Swans will chase away and entirely disown their offspring after a certain age, and long before they have attained the adult plumage. Many other birds will do the same; and, with apparent inconsistency, the adults will fly at any person who attempts to capture these very disowned youngsters. They seem, therefore, to desire to get rid of the company of the young brood—thus causing them to take care of themselves—without endangering their safety. On the other hand, some species of the feathered tribe remain with their brood until these pair, the following Spring. In this catalogue I may name the Bullfinch, and other birds which are supposed to pair for life. Then, again, there are the gregarious species, or those which flock together indiscriminately. Sometimes, however, it will be found that the young birds live in flocks separate from the adults; or at certain seasons the males will separate from the females, as takes place among Greenfinches and Chaffinches. The scientific name of the latter is, accordingly, *Fringilla cœlebs*, or Bachelor Finch.

Mr. SELBY says, in his valuable work on British birds:—"A person engaged in a field, not far from my residence, had his attention arrested by some objects on the ground, which, upon approaching, he found to be two Partridges, a male and female, engaged in battle with a Carrion Crow; so successful and so absorbed were they in the issue of the combat, that they actually held the Crow till it was seized, and taken from them by the spectator of the scene. Upon search, the young birds (very lately hatched) were found concealed among the Grass. It would appear, therefore, that the Crow, a mortal enemy to all kinds of young game, in attempting to carry off one of these, had been attacked by the parent birds, and with the above singular success."

Instances have also been known of the domestic cock keeping the Sparrow Hawk a close prisoner under its talons, when the accipitrine plunderer was on the point of seizing a chicken; and if the farmer be in the way, the bold depredator quickly receives the extreme penalty of the agricultural law for all such heinous offences. I have likewise heard of a bantam hen which was saved from the talons of a Sparrow Hawk by the timely interference of a Turkey-cock; this is the more remarkable, as the latter bird is generally apt to take to its heels when any *real* danger is to be apprehended.

Now that I am on the subject of the accipitrine order, I may take notice of the statement of ROBERT MUDIE, to the effect that the members of this division

are much less injurious to game than is generally supposed, since they destroy infinitely more of vermin than they do of game, and therefore their trifling attacks on the latter are conceived to be far more than counterbalanced by their extensive destruction of the former. Mr. WATERTON, moreover, never permits a gun to be fired within his park walls; and yet game is remarkably plentiful in his delightful territory. Mr. W. says the "game-*keeper*" is the real game-*destroyer*; as in searching for the nests of Pheasants and Partridges, a track is made to each of these, by following which, Weasels, Polecats, and other vermin, find an easy prey. The Pheasant always rises on wing from her nest, and drops down upon it in returning.

Here, however, I must again grant a truce for a while to your readers and to myself, for time and space both fail me.

Canterbury, June 1, 1839.

NATURAL HISTORY OF THE BLOOD-HOUND AND ITS VARIETIES.*

Part I.—African and Spanish Varieties.

By A LOVER OF NATURE.

THE natural history of several individuals of the Dog-tribe appears to be enveloped in considerable obscurity; such species, more especially, as have become altogether or nearly extinct, and such as, having been permitted to engender with inferior kinds, have now ceased to exist in their original purity, except perhaps a few solitary specimens rarely to be met with; and to these I may also add those sorts which, not being natives of this country, but transplanted hither from abroad, are liable to be misnamed, misrepresented, and inaccurately described.

How erroneous, for instance, are the opinions current respecting the "old Irish Wolf-Dog" (*Canis graius Hibernicus*), the great Danish Dog, the blood-hound and its varieties, the Boar-Dog of Germany, the mastiff of Thibet and Tartary, the Spanish Wolf-Dog, the Dog of Mount St. Bernard, the "Dogue" and "Dogue de-forte-race" of BUFFON, and even our own mastiff, now seldom to be seen thorough-bred.

It is now some years since I commenced investigations respecting some of the above-mentioned animals; and I certainly found the task infinitely more laborious than I had at all anticipated. Many a weary journey has it cost me, many a

* From the *Dublin Medical Press.*

rude rebuff from insolent game-keepers and aristocratic porters, many a blush, too, has it raised on my face when I have sought the presence (unintroduced) of some exalted possessor of a remarkable specimen of any of the objects of my inquiry. I have this much to say, however, that I have invariably found it the better plan, even at the expense of the fore-mentioned blushes, rather to introduce myself at once as "A Student of Nature" to the principals themselves, than expose myself to the rudeness of ignorant hirelings. All my labour and all my mortifications have, however, been amply repaid by my success in at length obtaining the information I desired. I am at last able to declare my curiosity satisfied, and, with no small degree of pleasure, proceed to lay before the public some of the results of my tedious investigations.

First, then, I shall treat of the blood-hound, not that I consider it superior in any respect, if, indeed, equal, to the Irish Wolf-Dog, Boar-Dog, Dane, or Thibetian mastiff, but because I have observed that, especially in Dublin, more mistakes seem to prevail concerning him than any of the rest. Several very large spotted Dogs, for instance, in the possession of different individuals in this city, and styled blood-hounds, have about as much right to the appellation as the bull-Dog at my feet. These appear to be for the most part mongrels, bred originally from the great Dane or Boar-hound, with perhaps a tinge of *Spanish blood-hound*, some two or three generations back; and I am convinced that, so little are the varieties of the blood-hound known, there are few in Dublin but might be imposed upon if shown as such any large foreign-looking Dog with whose actual species they were unacquainted; and probably (as has actually come under my observation), were a genuine blood-hound to be shown them, they would reject him as spurious or a counterfeit; for the varieties of this Dog are far less striking in their appearance than some suppose, and in stature, or singularity of form and colour, fall far short of many of the above-mentioned mongrel, but splendid-looking pretenders.

There are three Dogs at present known under the name of blood-hound, which, though by some considered distinct from one another, I am disposed to regard as varieties of the same animal, the difference in their appearance being probably owing to climate, if not, indeed, to some intentional or accidental cross. These varieties are the African, the Cuban or Spanish, and the British.

The first, viz., the African, I am inclined to regard as the original whence the others sprang. The Cuban seems to have a dash of greyhound in him, and the British would appear to have been *improved* by the intermixture of the old English talbot, which I take to be a far more genuine as well as more *ancient* animal.

The first to be described, therefore, is the African, and of him there must be the least known—as far, at all events, as regards his original extraction. The African blood-hound is very seldom to be seen in this country; he sometimes

resembles a very large and raw-boned Spanish pointer (*C. avicularis Hispan.*). His ears are pendulous and fine in texture, about the length of a foxhound's; coat very fine, and skin apparently thin; colour generally dark liver-colour clouded with black, yet sometimes tan; muzzle nearly always black, as also the tip of his ears; head pretty large, and shaped like a pointer's; eyes placed towards the front; tail fine, and carried rather horizontally than erect. The appearance and manners of this Dog are ferocious in the extreme; he stands about twenty-six inches high at the shoulder, often less, but seldom more.

I saw one of these animals in London sometime ago, which had been brought from the Cape of Good Hope, and from him took my description; he was the only African bloodhound I have ever seen; and as these Dogs are apt to die when brought to a cold climate, I dare say few of my readers (if any) have ever met with one of them.

Two African bloodhounds were brought to England, and presented to the Tower Menagerie, by Major DENHAM, whom, by the way, I have often envied his chasing of the Antelope with these Dogs across the plains of sand. A drawing of them may be seen in the first volume of a very interesting work published by the Society for Promoting Entertaining Knowledge—entitled *The Menageries*. I was also shown a sketch of one, and furnished with a description similar to the one I have given above, by a friend who had spent some time at the Cape. These are very swift Dogs, of exquisite sense and smell, great endurance, and indomitable courage. My account of the African variety ends here, and I now come to one somewhat better known—one at all events concerning which information is more easily obtained—viz., the Cuban or Spanish.

This animal does not differ so greatly in form from the former-described variety as at first sight might be supposed. It is in general much taller, is of a slighter make, bears its head higher, and is altogether a more imposing-looking Dog than the preceding. It is said to be inferior in smell, which I conceive must be the case from the formation of the head and nose; but what it wants in scent it makes up in speed, being in this respect little inferior to many greyhounds. This Dog is to be found in greatest perfection at present in South-America; many are brought from the West-Indian Islands also, but are scarcer there than on the Continent; this is a very tall Dog, being frequently twenty-seven to twenty-eight inches high at the shoulder: in his general shape he resembles a smooth lurcher, or a cross between a greyhound and a mastiff; his head is thick across the temples; muzzle long and rather fine, yet by no means so small as a greyhound's; ears something like a greyhound's, but larger and much more pendulous; this is particularly seen when the animal is in a sitting posture, with his nose inclining towards the ground, looking at any object on the carpet (if in a room). This Dog's neck is long, and as he carries his head well up, he has, when a good-sized specimen, a

very noble appearance; his tail is moderately long, and tapers to the extremity; it is very slightly villous beneath; colour generally tan shaded with black above—sometimes liver-colour—and occasionally Mouse-coloured or silvery grey; the muzzle and tips of his ears are generally darker than the rest of his body—often black. This Dog, be it observed—and I state this on the authority of a native of South-America—is never seen mottled or of two colours: that is to say, speckled or streaked, or black and white, &c. When such is the case, rest assured that the Dog is not by any means well-bred, but has probably had for one of his parents a Boar-hound or Danish Dog. The eyes of this Dog are placed very much towards the front of the head, and very close together, which I conceive must tend in some measure to confine his vision to objects more immediately in front.

This is the well-known Dog rendered so famous, or rather infamous, from his having been employed by the Spaniards in their cruel and exterminating conflicts with the Americans. The same, also, since frequently used in the capture of runaway slaves in the West-Indies. I have been informed that on such occasions a small Dog of the spaniel breed should be used, called a finder, as the blood-hound is slow at hitting off the trail unless so aided, not possessing the same nicety of smell that is displayed by the two other varieties.

He is a Dog of extreme courage; is capable of much affection; seldom exhibits treachery unless to entrap a declared foe or a strange beggarman, on which occasions he has been known to simulate sleep, and thus induce the unsuspecting man to pass within reach, on whom he would certainly spring were he so unwary. Their manner of seizing and biting closely resembles the practice of the bull-Dog (*C. molossus*). They never let go their hold when they have once fastened, but increase their mouthful continually, making every effort to tear away the bit, which they not unfrequently do. Let them once fasten on the throat of their foe, and, whether uppermost or undermost, the battle is their own. One of these Dogs killed a good-sized bull-Dog in about ten minutes, never having changed the hold he got at first. I saw one of these Dogs opposed to a Bear, on which occasion he did very well, but Bruin having ripped the skin off his shoulder, he declined further combat, and resigned the field of battle in favour of a young Boar-hound, son of his Grace the Duke of Buccleuch's Dog, "Hector," which, though barely eighteen months old, pinned the shaggy monster by the nose, hurled him to the ground, and punished the poor Bear so severely, that in a few minutes the brute howled for quarter, and was glad to yield, "rescue or no rescue." I feel it my duty to remark, "*en parenthèse*," before going any farther, that although I may thus mention "*combats des animaux*," or even minutely describe them, yet I condemn them *in toto*—as cruel and degrading to human nature. I saw many such scenes when a much younger man than I am now. Do not ask me, dear reader, "how long ago?" My blood was warmer then than it is at

present, and in the excitement of the scenes I witnessed, I forgot for a long while to reflect upon their barbarity. When I mention such things, therefore, it is merely to display the character of the animal I am describing in a clear point of view, while at the same time I disapprove of such practices.

The Spanish blood-hound is more commonly seen in this country than the African or Spanish varieties, and I have found that to it is the name of blood-hound almost exclusively applied. The finest specimen of the breed I have ever seen was in the possession of Mr. JOHNSTON, of Edinburgh, to whom, as I was told, it had been sent from Jamaica by a brother resident there. I was informed that Mr. JOHNSTON was offered sixty guineas for this Dog, which, however, he refused. I saw this animal, in company with a young South-American, who assured me of its being, as far as he could judge, a perfectly fine specimen. I saw also a smaller Dog of the same breed in Edinburgh, in the possession of Mr. CHARLES MACKNIGHT, son of the late Dr. MACKNIGHT of that city. At that time I did not believe Mr. MACKNIGHT's Dog to be thoroughbred, in consequence of its diminutive size. I have since, however, seen one in Dublin, the property of Sir PHILIP CRAMPTON, the Surgeon-General, which is even less than it, and of the purity of whose blood I can hardly entertain a doubt. The Surgeon-General's Dog is of a very light Mouse or silvery-grey colour, and appears certainly far better bred than any of her offspring that I have ever seen. I also saw two of this breed in London; they had been brought from Barbadoes, and were handsome animals.

Since I came to Dublin I have been much amused at the comical ideas prevalent respecting this Dog, his name being commonly bestowed upon some large black and brown mottled coarse-looking Dogs utterly useless, often misshapen, or even of diminutive size, and destitute of all value or attraction, save such as they might derive from the singularity of appearance or colour. I am at a loss to know how these Dogs came first into Dublin, and particularly how in the name of wonder they ever came to be styled blood-hounds. From their appearance I should be inclined to derive their blood from the great Danish Dog; but if so, that lordly and gigantic animal must have undergone a variety of crossing, and have reached no trifling pitch of degeneracy, ere from his stock could spring such *attempts* as are some of these pseudo blood-hounds; that, indeed, might be rather referred, one would think, to a mixture of the carriage Dog (*Canis Dalmatiensis*) with the Italian greyhound or common greyhound, as size might indicate. Here ends my description of the Spanish or Cuban bloodhound, and I shall conclude its history with a simple anecdote, illustrative of its courage, strength, and sagacity. You may rely upon its authenticity, and also upon its originality—two great points, in my opinion, for I hate retailing or hearing retailed those common-place anecdotes of Dogs that have run the gauntlet through society for the last ten or

twenty years. I had the present anecdote from the young South-American I have already mentioned, who told it to me as a proof that the courage of the Spanish blood-hound is equal, nay, superior, to his strength and ferocity, and that he is not, as some have asserted, "violent and relentless towards such enemies as are weaker than himself, but a very coward at heart."

Many years ago, when my informant was a boy, there still remained a few "Tigers" (*Cougar*) in Demerara, which, as my readers all know, is situated in Guiana, in South-America; but, being nearly extirpated, they were seldom met with, and of consequence little dreaded; and the few solitary individuals occasionally seen, appeared so disheartened by constant pursuit and persecution, as at all times to shun rather than seek or even await encounter.

The Cougar—or, as the natives term it, "Tiger"—was, and is still, though much diminished in number, a favourite beast of chase among the South-Americans, and they employed in its pursuit a powerful and active race of Dogs, somewhat resembling, especially in colour, those spotted animals denominated blood-hounds in Dublin. These were, from the service in which they were employed, called Tiger-hounds; they possessed but little courage unless when associated in packs, and were rather prized for the activity with which they would elude the springs of an infuriated Cougar or Jaguar, and the readiness and perseverance with which they would hunt him until he was either "*tree'd*" or brought to bay. On the Cougar's being wounded, the pack will often close with and destroy him. This attempt, however, is frequently productive of fatal consequences to several of the pack; for I have been assured by my friend, that he has seen upwards of thirty Dogs upon a single Panther, which, though severely wounded, had killed four or five of the Dogs, and torn others cruelly before the hunters came up and dispatched him. On some future occasion I shall probably, should I find my account of the blood-hound approved of, devote a paper to the natural history of the Tiger-hound, but shall for the present leave him and resume my narrative.

The subject of my story and the uncle of my informant, was a very ardent sportsman, and kept as fine a pack of Tiger-hounds as any person in all Guiana. He owned a large estate that yielded him a superb income, which he, however, appeared to value principally for the facilities it afforded him of pursuing, *ad libitum*, his favourite pastime.

One morning—and it was a morning by him never afterwards to be forgotten—the subject of this anecdote left home, and proceeded alone on a shooting excursion. I should scarcely, however, be justified in asserting that he went forth absolutely alone, for two powerful Tiger-hounds followed closely at his heel. His favourite blood-hound howled long and plaintively for permission to join the party, but his master was inexorable; he was tied up and left behind. Indeed

even the two Dogs he took with him were more as companions than from any idea he entertained that their services would be called into requisition. Had he expected danger, it was not on them he would have relied, but on the noble animal whose courage and fidelity he had so often proved, and who was now left at home.

The day passed over without any remarkable encounter, and Mr. A. was on his return home, his game-bag laden with feathered spoil, and a fine buck suspended from a projecting branch of a *marked* tree, awaiting the morning's sun till a slave should be sent for it. He had now nearly reached the out-skirts of the wood, when he suddenly perceived in the thicket, on one side of the path through which he must pass, two small faint and twinkling lights, like that of a pair of Glow-worms; his practised eye instantly informed him that this appearance proceeded from nothing but the malevolent eyes of a wild beast—whether Cougar, Puma, Jaguar, he hesitated not to determine; one thing was certain, retreat was fatal, and to advance was apparently equally so. Now for a bold shot, a steady hand, and a cool sight, and you may yet be saved! Take care, sir, take care! The sportsman's first action is to throw the barrel of his piece, unfortunately only a smooth bore, across his left arm, the thumb of his right hand cautiously and noiselessly cocks the gun, and the fourth finger of the same hand feels the trigger. Mr. A. steadily advanced; he was not suffered to remain long in suspense; he had proceeded but three paces when with a terrific cry the Cougar (for such it was) sprung from its lair and dashed upon him. He fired, but apparently without effect; where were now his hounds? They had fled at the first glimpse of the furious beast, and rent the woods with their cowardly wailings! He struck indeed a few blows with the but end of his piece, but the robber of the forest was too nimble for him; a momentary struggle and he was upon his back. The ferocious Cougar was standing or rather crouching over him; one paw was upon his broad chest, and each protruded talon, penetrating his clothes and flesh, caused a stream of blood to trickle down his side; the other paw grasped his skull, and he felt as if each claw penetrated to his brain; his senses reeled, and his blood suffused his eyes and nearly blinded him; still, however, this heroic American fainted not, nor ceased struggling manfully for the victory. His vigorous arms were extended, and his hands grasped the monster's throat, thus keeping him for a time from bringing into play those rapacious jaws, which, as the hunter's strength declined, were gradually advancing into a closer proximity with his face; such a fearful struggle could not be of long continuance. The burning eyeballs of the Cougar glared nearer, and more near still, as they looked into the bloodshot orbits of the prostrate but still fearless victim; their owner was forced to turn them aside from the encounter, as if conscious of the dastardly nature of his attack, and the superior bravery though inferior strength of the man upon whom

he couched. The powers of the man relaxed; Nature had done her utmost, she was at length exhausted. The darkness of despair was on the point of plunging his senses in unconsciousness, and death was about to seize upon his victim, when the brushwood behind him crashed and yielded before a heavy weight, the bay of a blood-hound awoke him to consciousness and hope, a large animal bounded upon his merciless foe, the shock hurled the destroyer from its prey, and the brave hunter felt that he was saved.

An American hunter, whether a native of the Northern or Southern division of that vast Continent, rarely, if ever, loses his presence of mind. The prostrate and much-lacerated man tottered to his feet, and recovering his hunting knife, which he had lost in the struggle, staggered forward, and at eminent further hazard to himself, plunged it repeatedly between the ribs of his late conqueror, who, although he had well-nigh mastered the Dog (for such was his deliverer), was still too firmly fixed in the blood-hound's gripe to foresee or evade the avenging thrusts. It then fell backwards and released its courageous opponent, who, however, despite his wounds, maintained firm hold of his throat until Mr. A. had reloaded his gun, and, applying it to the monster's ear, put it out of pain, and deprived it of the capability of doing further mischief.

Need I explain the occasion of this truly providential and almost miraculous rescue. The favourite blood-hound which on quitting home he had left behind him, had continued howling all day as if possessing a sort of prophetic prescience of the accident, by which his owner's life would be placed in such extreme danger, and having at length broken loose, had gone forth in quest of his missing master, and found him in time, but only just in time, to save him from one of the most horrible of deaths.

The brave hunter, although much torn, contrived to remove the Cougar's scalp, *i. e.*, the ears, and that portion of skin between and around them, and also to return home, from whence he was fortunately not far distant; nor did he, I am happy to be able to say, ever forget his faithful deliverer, but took the greatest care of him until he recovered from his wounds, which were of course severe, and constituted him his constant attendant, night and day, till at length he died at the advanced age of nineteen years, full of days and of honour.

The gentleman to whom the above extraordinary adventure occurred, is still living, and to this day retains on his breast and forehead deep scars, pointing out the wounds he received in that singular and almost fatal encounter.

The Spanish blood-hound belonging to Mr. Johnston, of Edinburgh, appeared very good-tempered and patient of injury. I once saw it thrown a piece of bread, and just as it was about to pick it up, a Skye terrier that chanced to be passing by ran in and snatched it himself; and although this very impertinent action was accompanied by a bitter and provoking snarl, the noble hound disdained to meddle

with so small a foe. I once saw the same animal inflict a severe chastisement upon a very large Newfoundland Dog, on the sea-beach at Wardie, a bathing place near Edinburgh. This Dog of Mr. JOHNSTON's had been taught to retrieve, and was even a useful and willing attendant upon the gun. He was unfortunately suffered to fall too much into flesh, and consequently became at length too lazy to be valuable for any purpose in which activity was requisite. I was told, that shortly after he was brought to this country from the West-Indies, he ran down a Hare very readily; when I saw him, however, his plethoric aspect rendered such an idea excessively laughable. It has often occurred to me that these Dogs would make excellent Stag-hounds, combining in so eminent a degree strength, courage, swiftness, and fineness of smell. I wonder some of the Highland noblemen and gentlemen, who could afford to import a few couple of these Dogs from South-America, or the West-Indies, don't make the experiment.

Having now concluded the natural history of the African and Spanish varieties of blood-hound, and being fearful of trespassing too long upon your time at present, I shall leave the remainder of this subject, viz., the British variety, for another paper.

SKETCHES OF EUROPEAN ORNITHOLOGY.

GOULD's "BIRDS OF EUROPE," PART III.

BY SHIRLEY PALMER, M.D.

(Continued from Vol. IV., p. 473.)

JER FALCON, *Falco Islandicus*,—Faucon Gerfaut, *Fr.*—Sparvière bianco di Moscovia, *It.*—der Islandische Falke, *G.*—constitutes the noble subject of this plate. Two figures, illustrative of the striking varieties of plumage in the young and adult, are admirably represented. From the observations of Mr. GOULD, it appears probable that, under the common designation of Jer Falcon, two distinct species have hitherto been confounded. One of these, the true Jer Falcon of Iceland—Faucon d'Islande, *Fr.* ?—is regarded, by Falconers, as a much more rare, courageous, rapidly-flying, and valuable bird than the other—Gerfaut de-Norwège ?—commonly obtained from Norway. They are said to differ, also, in the comparative length of wing with respect to the tail. The Jer Falcon is the type of the true Falcons, and, consequently, of the genus *Falco* as constituted by modern ornithologists. It is a native of Northern Europe, and occasionally visits the Orkney and Shetland isles. An accurate figure of this noble bird is given, by WERNER, in Plate V. of the *Atlas des Oiseaux d'Europe*, and an interesting

account, by SWAINSON and RICHARDSON, in Vol. II., p. 27, of the *Fauna Boreali-Americana.** The question respecting the specific identity, or difference, of the birds obtained from Iceland and Norway, is well entitled to the attention of ornithologists.

AZURE-WINGED MAGPIE, *Pica cyanea*, or, more correctly, *cyanoptera*. This rare and elegant bird, a native of Spain, has not hitherto been described by TEMMINCK, or any other European ornithologist with whose works we are acquainted, except WAGLER, in his *Systema Avium*. It strongly resembles its lively, impudent, and more common congener, in structure and habits. The following is the specific description, as traced by GOULD; whose figure is as correctly drawn as splendidly coloured: Beak and legs black. Vertex, occiput, and ear-coverts, black, with shining violet reflections. Back and rump ashy rose-colour. Throat white. Under surface same as, but a few shades lighter than, the back. *Wings and tail delicate azure-blue:* primaries, excepting the first two, which are black, white on outer web about half the length from tip. Tail graduated; each feather tipped with white. Length 12—14 inches. Sexual diversity, none.

SQUACCO HERON, *Ardea comata* (—*ralloides*, SCOPOLI,—*castanea*, GMELIN),—Héron crabier, *Fr.*—Sgarza ciufetto, *It.*—Rallen Reiher, *G.*—An adult male, figured with extraordinary truth and delicacy. From the long, slender, and *hair-like* plumes which decorate the vertex of this rare visitant of the British islands, the specific designation, *comata*, is rendered peculiarly applicable. Its habits resemble those of its congeners. Of its nidification little is at present known.

Plate IV. exhibits three exquisitely-drawn figures, one illustrative of a newly-distinguished species, of British *Regulus*. The *first* of these is the Fire-crested Wren, *R. ignicapillus*—long known and recognized, in South Europe, as a distinct species; but overlooked in Britain, or confounded with its paler-crested congener. We have, ourselves, frequently remarked the difference of colour in the vertex of these two birds; but were induced to consider it as merely a sexual diversity. The honour of the discovery is due to the Rev. L. JENYNS. Our little stranger, closely resembling the common species, in size, habits, food, and nidification, is principally distinguished by the *fiery colour of the crest*, a more decidedly golden lustre of the sides of the neck and top of the back, and the alternate stripes of white and black, which occupy the sides of the face both above and below the eye. It is the *Roitelet triple-bandeau (Sylvia ignicapilla)* of TEMMINCK; *Varietät der Goldhähnchens*, of the *Germans;* but not noticed in the last edition of SELBY'S *Illustrations.*—*Figure Second:* Golden-crested Wren,

* Termed, also, *Northern Zoology.*

Regulus auricapillus,—vulgaris of Cuvier,—*Sylvia*—, *Motacilla regulus*, of older writers,—le Roitelet ordinaire, *Fr.*—Regolo, *It.*—Gekrönter Sanger, *G.*—A male and female specimen.

Pine Grosbeak, *Corythus enucleator* (*Pyrrhula*, and *Loxia enucleator*, of Temminck and of Linnæus),—Bouvreuil dur-bec, *Fr.*—Ciufolotto snocciolatore, *It.*—Haaken Kernbeisser, *G.*—This beautiful bird, formerly arranged among the Bullfinches, exhibits, in Cuvier's opinion, characters sufficiently decided to justify the institution of a new genus. *Corythus* forms the connecting link between *Pyrrhula* and *Loxia;* resembling the former in its haunts, habits, and style of colouring;—the latter, in the construction of its beak. The *generic characters* are:—Beak short, hard, thick; everywhere rounded, and slightly hooked at the point. Nostrils basal, linear, rounded, and covered with thickly-set, hair-like feathers. Tarsi short. Toes entirely divided. Wings longer than in *Pyrrhula*. Tail moderate, and slightly forked. Its natural habitation is the Arctic Circle, and the extensive Pine-forests of the North: its food, the seeds of the Pine-cone, and wild berries. It is merely an occasional visitant of Britain. An adult male and female are the subjects of the plate before us. The female is admirably figured at p. 262 of Vol. II. of *Northern Zoology;* and the male and female delineated, and described, by Wilson and Bonaparte, in Vols. I. and III. of Jardine's Edition of *American Ornithology*.

Waxen Chatterer, *Bombycivora garrula*.—The genus *Bombycivora*, or *Bombycilla*, as now constituted, comprehends three species: the American Cedar-bird, *B. Americana*, vel *Carolinensis;* the Red-winged Chatterer, *B. phœnicoptera*,—discovered, in Japan, by the ill-fated Siebold, and figured in Temminck's *Planches Coloriées;* and the beautiful subject of the present plate,—Grand-Jaseur, *Fr.*—Garrulo di-Bohemia, *It.*—Europäischer oder Rothlichgrauer Seidenschwantz, *G.*—an inhabitant of the Arctic regions, and a rare visitant of the British islands. The curious wax-like appendages, which ordinarily adorn the tips of the secondary quills, and constitute one of the distinguishing characteristics of the genus, do not invariably exist. They are not represented in Temminck's figure of *B. phœnicoptera*.

Red-breasted Merganser, *Mergus serrator*,—Harle huppé, *Fr.*—Mergo oca di lungo becco, *It.*—Langschnabeliger Sager, *G.*—An elegant bird, finely illustrated by figures of the adult male and female. The only one of the four British species of the genus which lives throughout the year, and breeds, in these islands. What connection the spurious Latin term *serrator*, literally signifying, if it possess any meaning at all, a *sawyer*, can have with this beautiful aquatic bird, we are quite at a loss to imagine. It is high time all these revolting mummeries were swept, with an indignant hand, from the fair face of science,

which they serve only to disfigure and obscure. The proper designation of this hitherto misnamed bird is obviously *Mergus rubecula.*

Plate VIII. contains figures of two species of *Pyrgita*, executed with equal taste, and fidelity of outline and colouring. The *first* is the Spanish Sparrow, *P. Hispaniolensis*,—Gros-bec Espagnol, *Fr.*;—the *second*, the Alpine, *P. Cisalpina*—Gros-bec Cisalpin, *Fr.*—Passer volgare, of *Italian* ornithologists. In their external characters, these birds closely resemble our domestic Sparrow, of which they are congeners; but differ much in their haunts. Of their habits and nidification, little is known.

A splendid drawing of the Long-legged Plover, or, in the reformed nomenclature, Black-winged Longshank, *Himantopus melanopterus*—l'E'chasse à-manteau-noir, *Fr.*—Cavalière grande Italiano, *It.*—Schwarzflügelige Strandreuter, *G.*; formerly included, by Linnæus, under the genus *Charadrius.* Of this genus, there are only two species at present known: the subject of the plate under review, a rare visitant of the British islands; and *H. nigricollis*, figured and described, by Wilson, in. pl. lviii., p. 340, of Vol. II. of Jardine's Edition of *American Ornithology*, under the name of *Recurvirostra himantopus*, or Long-legged Avocet. The *latter* is regarded, by Bonaparte, as a distinct species from *H. Mexicanus.*

European Francolin, *Francolinus vulgaris*, Francolin à-collier-roux, *Fr.*—Francolino, *It.*—An adult male and female, admirably delineated. The only European species of a genus which, in the natural system, connects the splendid Pheasants of the East with the sober-tinted Quails and Partridges of the Continent of Europe. This fine bird is the *Perdix*—, *Tetrao Francolinus*, of our predecessors in ornithological arrangement.

Rose-coloured Pastor, *Pastor* (formerly, *Sternus vel Turdus*) *roseus*,—Martin Roselin, *Fr.*—Storno roseo, *It.*—Rosenfarbige Drossel, *G.*—The admirable figures of this rare and beautiful bird, as here represented by Mr. Gould, in the adult and immature male plumage, may proudly challenge comparison with any iconographical productions in this department of science which it has ever yet been our lot to examine. The colouring of the adult is as splendid, and that of the young bird as chaste and sober, as they are both correct. *P. roseus* is the only European species of the genus; seldom seen in Britain. Gould proposes as a query whether the young bird of this be not the "Solitary Thrush of Bewick?"

A minutely-correct representation of the Arctic Tern, *Sterna Arctica*,—Hirondelle-de-Mer Arctique, *Fr.*—confounded, till the time of Temminck, with the common Tern, *S. Hirundo*; from which it may be distinguished, at all ages, by its smaller and more slender figure; longer and more elegant tail; shorter and less robust beak and tarsus, and the wholly red colour of the former. The eggs

of *S. Arctica* are smallest. The two species do not associate together. See *Northern Zoology*, Vol. II., p. 414.

Plates XIII. and XIV.—To the separation of the two species of WAGTAIL which respectively constitute the subjects of these plates, from *Motacilla*, and their formation into the new genus *Budytes*, we are yet more strongly opposed than Mr. GOULD. Such innovation was, we know, first proposed by the illustrious CUVIER. But we bend not to the authority of names even as great as his. The facts of unerring Nature, not the whims and fantasies of erring and instable Man, are the foundation on which we would seek to erect the imperishable edifice consecrated to science, and only worthy of its destination when so erected. What are the characters which, in the *opinion* of the French zoologist, justify this deviation from the track of his able predecessor, RAY?—The greater length and less curved figure of the posterior claw; by which the (so-named) *Budytes* is connected with the Pipits and the Larks,—Farlouses et Alouettes, *Fr.*—*Anthi* et *Alaudæ*, *L.* See *Règne Animal*, Vol. I., p. 391. Now, such peculiarity of structure we contend, although furnishing a good sub-generic, is not of sufficient weight to constitute, alone, a generic character: more especially as all the four British species otherwise exhibit a close resemblance to each other in structure. The *first* of Mr. GOULD's plates represents two figures, male and female, of the Yellow Wagtail, *Motacilla* (*Budytes*) *flava*,—Bergeronnette Printanière, *Fr.*—Cutrettola di-Primavera, *It.*—Gelbe Bachstelze, *G.*; the *second*,—corresponding figures of the Grey-headed Wagtail, *M.* (*Budytes*) *neglecta*,—a species hitherto confounded with the preceding; from which it is principally to be distinguished by the bluish ash-colour of the head and nucha, and by the existence of two white lines passing transversely, one above, and the other below, the eye. In its manners, *M. neglecta*, described by TEMMINCK under the specific designation of *flava*, is said to differ widely, in its manners, from the real Yellow Wagtail of British ornithologists. However this be, the epithet *neglecta* is highly objectionable; and should be sentenced to perpetual exile from the domains of science. A more appropriate one will presently suggest itself to us.

According to our views of ornithological arrangement, the four British Wagtails may be distributed in the following order:—

Genus, *Motacilla*.

A. Hind claw moderately long and curved.

1. *M. alba*—*melanoleuca*. 2. *M. boarula*.

B. Hind claw elongated and less curved.

3. *M. flava*. 4. *M. poliocephala*?

Even Dr. FLEMING himself—*History of British Animals*—retains the Yellow Wagtail in the genus *Motacilla*.

SAND GROUS, *Pterocles arenarius*,—Ganga unibande, *Fr.*—Ringel Waldhuhn,

G.—The genus *Pterocles*, separated by TEMMINCK from *Tetrao*, includes only two species, *P. setarius*, and the subject of the present plate, an inhabitant of Spain, Sicily, North-Africa, and Asia. A male and female are here represented in Mr. GOULD's best and boldest style.

BLUE-THROATED WARBLER, *Phœnicura*—, *Motacilla*—, *Sylvia*—, *Curruca*—, *Suecica*,—Becfin Gorge-bleue, *Fr.*—Beca-Fico chiamato, *It.*—Of this beautiful and interesting little bird, thinly dispersed over the European Continent, from Sweden to the Mediterranean, one specimen only has yet been met with in the British islands. It is at once distinguishable from its congeners by the ultra-marine *blue colour of the throat* and upper part of the neck, with a patch of pure silky white in the centre. The male and female are exquisitely figured by Mr. GOULD. *Cyanecula* is obviously a more appropriate specific designation than *Suecica*, for a *blue-throated* bird.

GREEN WOODPECKER, *Picus viridis*,—Pic vert, *Fr.*—Picchio verde, *It.*—Grünspecht, *G.*—is here delineated in all the author's characteristic style of boldness, accuracy, and splendour. The two figures exhibited, are those of an adult and young male bird. On what good ground this beautiful inhabitant of our forests has been torn from its ancient family-connections, and transformed into a *Chrysoptilus*, we have yet to learn.

Of our favourite little songster, the BLACK-CAP, *Curruca*—, *Motacilla*—, *Sylvia*—, *atricapilla*,—Bec-fin a-tête-noir, *Fr.*—Capinera commune, *It.*—Schwarzköpfige Grasmücke, *G.*—we are here presented with two delightful figures, male and female. To our view, the present is one of the most captivating plates in Mr. GOULD's splendid and captivating work. It is necessary to distinguish the present bird from *Sylvia melanocephala* of LATHAM,—Bec-fin mélanocéphale of TEMMINCK,—a species which inhabits South-Europe, but is, as yet, an alien to the British islands.

A charming representation of the GREY SNIPE, *Macroramphus griseus*,—Becassine ponctuée, *Fr.*—in two figures, illustrating the appearance of the bird in its Summer and Winter plumage. It is, in its *former* state, the Red-breasted Snipe of PENNANT and of WILSON,—*Scolopax Novoboracensis*, LATHAM,—*American Ornithology*, Vol. II., p. 337; in the *latter*, the Brown Snipe of PENNANT, and *S. grisea* of LATHAM's *Index Ornithologicus*. It is mentioned, under the title of the New-York Godwit, at p. 398 of *Northern Zoology*; and figured, under the article "Snipe," in the Supplement to MONTAGU's *Ornithological Dictionary*. Three specimens only of this bird have hitherto been killed in Europe. The criticism of TEMMINCK on the elevation of the Grey Snipe to the head of a new genus, so strictly accords with our own views and opinions, that we shall transcribe it:—"LEACH has formed of this species a new genus, under the name of *Macroramphus griseus*, apparently on account of the minute

membrane which unites the exterior to the middle toe,—the only difference which distinguishes this bird from the other European Snipes, of which it exhibits all the manners and habits. In isolating beings by such minute and anomalous characters, which do not relate to any of their animal functions, we create difficulties in artificial classification: the memory becomes uselessly burthened with a series of names; and method serves only to impart false notions on the nature and relations of animals."—*Manuel d'Ornithologie*, Vol. II., p. 680.

The birds which compose the genus *Lestris*, have hitherto been confounded with the *Lari;* although sufficiently distinguished from them by peculiarities of external character and of habit. The *Gulls* are lazy and timid birds: the *Lestres* or *Skuæ*, on the contrary, are bold and fearless; rarely fish for themselves; but subsist on food which they compel the Gulls to disgorge. The genus, as now constituted, comprehends four European species, among which is the subject of the present plate, the Common Skua, *Lestris cataractes* (*Larus cataractes*, Linnæus, *Cataractes vulgaris*, Fleming),—Stercoraire Cataracte, *Fr.*—This noble bird is figured in a style worthy of one in which the Eagle itself finds a formidable assailant.

ON THE HABITS AND PECULIARITIES OF BRITISH PLANTS, AND ON THE DERIVATIONS OF THEIR LATIN NAMES.

By T. B. Hall.

(Continued from Vol. IV., p. 477.)

Chyrsosplenium.—Named from χρυσος, gold, and σπλην, the spleen; in reference to the golden colour of the flowers, and the supposed virtue of the plant in diseases of the spleen.

Chrysosplenium oppositifolium, Opposite-leaved Sen-green, Golden Saxifrage.—It is said to be both aperient and diuretic, but not very powerfully so, as would seem to be shown by its common use as a salad in the Vosges, where it is freely eaten under the name of *Cresson de-roche.*

Cichorium.—Originally, according to Pliny, an Eyptian name, and adopted by the Greeks. It is sometimes written κικορειυν, whence among the simple fare of Horace—

"*Me pascunt olivæ,*
Me Cichorea, levesque Malvæ."

It is sometimes written Κιχοριον, or Κιχωριον, παρα το δια των χωριωνκιειν, because

it creeps about and scatters itself in the fields. Some derive it from κιχεω, *invenio*; on account of its being so readily found, or so common.

Cichorium Intybus, Wild Succory, Cichory, or Endive.—The root roasted is a substitute for coffee in some parts of Germany, and is said, when simply dried, to have served to make bread. The herb, in a luxuriant cultivated state, is an excellent early fodder for Horses and Cows. It belongs to the same family as the Garden Endive, and by some botanists has been supposed to be the same plant in an uncultivated state; but the Endive commonly used as a salad, is an annual, or at most a biennial plant, and its parent is now known to be *Cichorium endivia*.

Cicuta.—*Cicuta* was a term given by the Latins to those spaces between the joints of a Reed of which their pipes were made; and the stem of this plant is similarly marked by hollow articulations. Some old authors state it to be derived "*quasi cæcuta*," blind, because it destroys the sight of those who use it.

Cicuta virosa, Water Cowbane, Long-leaved Water Hemlock.—Pulteney describes it as "the most virulent of all our English productions." It has been generally considered destructive to Man and beast; but Goats have long been known to devour it with impunity. Early in the Spring, when it grows in water, Cows often eat it, and are killed by it; but as the Summer advances, and its scent becomes stronger, they carefully avoid it.

Cineraria.—From *cineres*, ashes; from the grey or ashen colour of the downy or woolly leaves and stem in some species.

Circæa.—Named after Circe, the enchantress; either from the prettiness of its flowers, or probably because it was used in magical incantations during the darker ages. According to Boerhaave, the name originated from the fruit, which is clothed with hooked bristles, laying hold on the clothes of passengers, and drawing them to it, as Circe was fabled to do by her enchantments.

Cistopteris.—Name compounded of κιστος, a bladder, πτερις, a Fern; the indusiums being like bladders.

Cladium.—Named from κλαδος, a branch; probably from the many branches bearing spikelets.

Cladium mariscus, Prickly Twig-rush, or Bog-rush.—Mr. Crowe observes that it is so plentiful on the moors near Cambridge, that it is commonly used in that town for lighting fires. It serves for thatching instead of straw, and often grows in such quantities in pools as to form floating islands.

Clematis.—From κλεμα, κληματος, a Vine-twig, or tendril; from its climbing or clasping propensity.

Clematis vitalba, Traveller's-joy, Virgin's-bower, Wild Clematis.—Thus named by Gerarde in 1597:—"Traueilers Joie, as decking and adorning waies and hedges, where people travell; Virgin's Bower, by reason of the goodly shadowe

which they make with their thick bushing and climing: as also for the beautie of the flowers, and the pleasant scent or savour of the same:" and, by country people, Old-man's-beard, from the hoary appearance of the silky, elongated styles. The trivial name from *Vitis alba* (white Vine).

The branches are sufficiently tough to make withs for faggots, for which purpose it is always used in the woods where it can be procured. Besides the claspers with which it is furnished, the very leaves have a tendency to twine around plants. The hairy plumes, growing in clusters, exhibit in Winter a singular and beautiful appearance over the tops of bushes, hedges, &c. It is particularly well adapted for covering arbours and bowers in pleasure-grounds, being of a rapid growth and hardy. "The tubes, lymph-ducts, and air-vessels of this plant, appear in a common magnifier beautifully arranged, being large, and admitting the air freely to circulate through them. Our village boys avail themselves of this circumstance, cut off a long joint from a dry branch, light it, and use it as their seniors do the tobacco-pipe; hence they call it 'Smoke-wood.' The pores are well seen by drawing some bright-coloured liquid into them." *Journ. of a Nat.*, p. 110. The long feathery down attached to the seed may often be found at the entrance of holes made by Mice; probably dragged there as a valuable material for their nests; as may be the seeds themselves (though small, abundant), no unimportant accession to the Winter store. In France, the common beggars, to excite compassion, produce ulcers by applying the juice to the skin; and the twigs are there used to make Bee-hives, baskets, &c., possibly in a warmer climate growing even larger and stronger than with us.

CORRESPONDENCE.

Geological Maps of Counties.

To the Editor of the Naturalist.

Sir,— * * * * Your inquiry respecting county maps, coloured geologically, will be best answered by a reference to the list of Mr. Cary's publications, in which all the particulars regarding the only maps of the kind, yet published, will be found. They are all the works of Wm. Smith. I do not at present propose to execute anything of this nature, though some proposals on the subject have been made to me. There are upwards of twenty English counties published

by Mr. Smith. They are in general very admirable works; and though of fifteen years date, no one is likely to emulate this veteran geologist.

This letter is not worth the postage, but Rowland Hill's plan will soon aid the correspondence of litterateurs and naturalists.

Yours most truly,

York, June 3, 1839. John Phillips.

Remarks on the Spring of 1839.

To the Editor of the Naturalist.

Dear Sir,—I venture a few more remarks on the present Spring for your approbation.

I yet hope to see an announcement of the time of arrival or appearance of our interesting vernal heralds, in the Southern and Western parts of the land, from the pen of some one or more of those who take an interest in your periodical, and in such matters.

The Field Vole (*Arvicola agrestis*), first appeared Feb. 5.—*Notonecta glauca*, first seen lying on his oars, Feb. 8.—Jackdaws began to build, March 2.—Violets (*Viola odorata*) in flower, 9th Do.—Frogs (*Rana temporaria*), spawning, 9th Do.—In this place is a ditch where I have observed the Frogs annually appear in large numbers, about this season, for the purpose of shedding their spawn. A quantity was cast on the 9th of March last.—On the night of the 10th the *coldest* in the month, the thermometer falling to 16°, or sixteen degrees below the freezing point. Upwards of seventy Frogs were killed by the intensity of the frost, but the eggs were uninjured, and have since been hatched.

Rooks here began to build March 10.—Periwinkle (*Vinaa minor*) in flower, 21st Do.—Daffodil (*Narcissus pseudo-narcissus*) flowering 17th Do.—Eggs of the Missel Thrush first found, 23rd Do.—Frogs croaking in the fen, 24th Do.—Wood-louse (*Oniscus asellus*) appeared 27th.—Pilewort (*Ficaria verna*) in flower, 27th.—Sand Lizard (*Lacerta agilis*) basking in the sun, 30th.—Eggs of the Thrush and Blackbird found, 30th.—Lapwing's eggs (*Tringa vanellus*), first seen, April 2.—Royston Crows (*Corvus cornix*) gone, April 11.—Snakes (*Natrix torquata*) first seen out, 16th.—Siberian Crab-tree leafing, 17th.—Lamprey Eels (*Petromyzon fluviatilis*) making up the stream, April 15, first observed. Hundreds of these singular fish are seen every Spring, apparently working their way from Lynn deeps up our river, at which time they are easily captured. They then disappear, and are rarely met with till the following season.—Sand Martins (*Hirundo riparia*) first seen, April 17th.—Red-start (*Motacilla phœnicurus*) flying about, 17th.—Swallows, two pairs, first seen, 17th. These beautiful creatures reappeared to assure us of the coming of the gladsome Spring,

after just six months' absence. Welcome! thrice welcome, "ye gentle tribe, your sports pursue."—Wryneck (*Yunx torquilla*) heard and seen, 18th.—House Sparrows hatched, 19th.—Starlings hatched, 20th.—Cuckoo heard and seen, 20th. This bird was said to have been heard by a shepherd as early as the 14th, but I doubted the authority. On the 20th I heard it in the evening.—The Nightingale heard, 21st.—Queen Wasps* flying about, 21st.—Blackbirds and Rooks hatched, 22nd.—Tadpoles, 22nd.—Ichneumons, Red Ants, and the White Butterfly, seen, 22nd.—Cowslip (*Primula veris*) in flower, 25th.—Early Orchis (*Orchis mascula*) flowering, 27th.—Blackthorn (*Prunus spinosa*) and Box-tree in flower, 28th.—Gooseberry and Currant-trees in full flower, 30th.—Ash-trees Do., 30th.—Hazle, Sycamore, Lime, Osier, and Chesnut trees, leafing.

These are a few of my notes of Spring's approach. I pray you insert only such as you may deem worthy a place in your Journal.

The Nightingale is now in full song; putting us almost out of conceit of our cheerful and nearly as sweet-toned native songster, the Thrush, whose notes on a still morn or eve in February, when that

> "Dark, frieze-coated, hoarse
> Teeth-chattering month
> Hath borrow'd Zephyr's voice,"

as oft it does, are, I think, as melodious, and more welcome, than even the splendid liquid tones of "peerless Philomel."

A friend of mine, the other day, during a short ride of little more than seven miles, on the public road, heard seven of these charmers, Nightingales, singing right merrily; a fair sprinkling for this desert part of a county not reckoned the belle of England. From inquiries made amongst the bird-slaying fraternity, I am happy to find few, scarcely any, of these beautiful choristers are sacrificed; though these sons of Moloch (so well described by the Northamptonshire poet, who, speaking of a man with a gun, says—

> "For his soul—tho' he outwardly looks like a Man—
> Is in nature a Wolf, of the Apennine clan,")

aim at and too often slaughter the Thrush, as he sings on the spray, ere it has blossomed; the beautiful, the harmless Starling, when cheerily piping to its mate; the wild Blackbird, whether thieving (as they term picking a few ripe cherries, sent by Heaven on purpose) or honestly inclined; and the lightly-skimming Swallow; but the "hellish thing," as the merciful Coleridge calls it, is done indiscriminately; every bird of the air is considered fair game, by all village

* Earl Fitzwilliam spends £5 or £6 every year in the destruction of these "queen Wasps" on his noble domain at Wentworth House, Yorkshire, giving a shilling for every Wasp brought to him in March and April. His lordship considers that a great saving is effected in the end by this outlay.—Ed.

gunners; bad aim to their barrels, and may a hearty rebound make sore their shoulders, every time they thus wantonly slay the most elegant creatures of the almighty world!

This has been a "Waterloo day" with my friends the Rooks, save that the carnage has been all on one side. The sounding guns e'en now "report progress" of the slaughter, whilst the affrighted old birds are flying over, with "most-musical-most-melancholy" cawing. The worthy owner of the location of the sable tribe, in this place, had determined upon preserving them this season; but the keeper told a tale in his game-ears of their misdoings, that he had "trapped a Rook at a Pheasant's nest, two eggs suck'd, and two more broken," his beak tinged yellow with the crime, and his very look guilty; so the fiat was issued for their partial destruction, as in former years; for the *caws* or *cause* of Rooks *versus* Game, can never stand long in the court of a sportsman, without issue, especially with the powerful pleading of a gamekeeper against them.

As usual I have filled my sheet with scribbling, only leaving room to subscribe myself,

Dear Sir,

Most respectfully yours,

RICHARD PIGOTT.

Stoke-Ferrie, Norfolk,
May 23, 1839.

THE NATURALIST'S LITERARY PORTRAIT-GALLERY.*

(Continued from Vol. IV., p. 442.)

No. VI.—PROFESSOR ARAGO.

WE regret our inability to furnish an extended biographical sketch of the eminent meteorologist and astronomer whose portrait adorns the present number of *The Naturalist;* but have much pleasure in presenting the following interesting character of M. ARAGO, translated from TIMON'S *Etudes des Orateurs.* The brilliant and penetrating eye, the lofty forehead, and well-shaped head, in the portrait, amply confirm the ensuing observations.

When M. ARAGO rises, the whole Chamber is in an attitude of curiosity, attends, and is silent. The spectators lean forward to see him. His stature is tall, his hair curling, and his fine "meridional" head sways the assembly.

* This series—comprising zoologists, botanists, geologists, and meteorologists, and including both scientific and popular naturalists—will be continued every alternate month, each memoir being accompanied by a portrait and autograph.—ED.

There is in the muscular contraction of his temples a power of will and reflection which manifests a superior mind. Utterly different from those orators who talk about everything, and do not know three parts of what they say, M. Arago speaks only on questions he has prepared, combining the attraction of knowledge with the interest of the circumstance. Thus his discourses possess both generality and actuality, and are addressed at the same time to the reason and passions of his audience. Scarcely does he enter upon a subject but he concentrates upon himself every look. He takes (if I may be allowed the expression)—he takes science between his hands, strips it of its asperity and technical forms, and renders it so neat and so perceptible that the most ignorant are delighted to see and comprehend it. His animated and expressive pantomime adds to the effect of the oratorical illusion. There is something luminous in his demonstrations, and scintillations of light seem to sparkle forth from his eyes, lips, and the tips of his fingers. He cuts his speeches by pointed interruptions which defy all answer; or by *piquantes* anecdotes which are well connected with his subject, and adorn without encumbering it. When he confines himself to the narration of facts, his eloquence has but the natural graces of simplicity; but when confronted with science, he deeply observes her to visit her secrets, and to re-produce her wonders; then his admiration begins to clothe itself in splendid language, his voice becomes animated, his words acquire a colouring, and his eloquence is as great as his subject.

This high eulogium of the splendid talents of the French philosopher, by an impartial and discriminating writer, is no more than M. Arago deserves.

PROCEEDINGS OF NATURAL-HISTORY SOCIETIES.

ZOOLOGICAL SOCIETY.

June 11.—Mr. Yarrell in the chair.—A letter was read from Mr. Cumming, dated Manilla, Nov. 18, 1838, in which he announced, that he had sent two cases with rare specimens of birds for the museum.—Mr. Ogilby exhibited and described several skins of Monkeys from Sierra-Leone, amongst which were three skins of Chimpanzees.—A Member exhibited, through the Chairman, several fishes analogous to the White-bait caught in the Thames, which were procured from a river in North-Wales. It was, until lately, considered that this fish was found exclusively in the Thames; but it has been discovered both in Cornwall and North-Wales, as also in several parts of Scotland.—Mr. Ogilby

next exhibited a very large skull and horns of the Elk, brought by Dr. Cox from Nova-Scotia, which had the peculiarity of distinction from those found in the bogs of Ireland, that the horns were very small in proportion to the head.—Mr. Bucknell exhibited an extensive series of living illustrations of the egg in its different stages of incubation until the full development of animal life. This subject gave rise to an interesting, scientific, and practical conversation, in which several new points in the economy of incubation were pointed out.—The Chairman announced that at the next meeting Mr. Goddard would exhibit a series of experiments illustrating the polarity of light in animals.—Mr. Ogilby officiated as Secretary, having accepted that appointment in the place of the Rev. John Barlow, who has resigned.

GEOLOGICAL SOCIETY.

May 8.—A letter was read from Mr. Atkinson, of Newcastle, accompanying a peculiar organic structure imbedded in Carboniferous Limestone, which possessed characters so anomalous that it was very doubtful whether it could be referred to the animal or to the vegetable kingdom. It was a slender vermiform body, much in appearance like a piece of Coral; and whilst some considered it a perfectly-organised animal remain, the Chairman thought it most likely to be a portion of the root of some ancient vegetable, especially as frequent instances have occurred in Africa of trees being rooted up and buried immense depths below the earth's surface by the Sand and winds which prevail in that Continent, and afterwards undergoing decomposition, absorbing Carbonate of Lime, so that when dug up they much resemble calcareous animal petrifactions.—A communication was next read from Mr. Bowerbank on the plastic Clay-formations of the Isle of Wight; the writer's object being to establish their identity with those of the London basin; and a third paper was read from Mr. Lyell, V.P., on the relative ages of the Tertiary deposits of Norfolk and Suffolk.

LINNÆAN SOCIETY.

On the anniversary of the birth-day of Linnæus, the meeting was held at the rooms of the Society in Soho-Square, the Bishop of Norwich, President, in the chair, when the annual report of the auditors was read, and Dr. Boote, the Secretary, read a biographical list of the members who had died the previous year. The members afterwards dined at the Freemason's Tavern, and the Bishop of Norwich gave a *conversazione* in the evening at his house in Lower Brook-Street. Amongst various illustrations in Natural History, the most important was a portable machine for artificial incubation, from Mr. Bucknell. There were exhibited birds in every stage of progression, from the embryo to the perfect, living, liberated, and healthful animal. A fresh egg was first broken to

show the germ or ciatricula of the future being, and afterwards twenty-one eggs in succession, to show the process of development to maturity. Not one of the entire series was a failure, the whole possessing life and animation. Under a glass cover warmed artificially were about a dozen birds that had come into existence within a few hours, which displayed great vivacity; and in a second were placed eggs in which the birds were attempting to liberate themselves from their shells, which they perform in a curious manner by making circular openings with their bills. The most wonderful phenomenon was the pulsation of the heart and the circulation of the blood, which in a living specimen continued the whole of the evening, without apparently suffering in the slightest degree from exposure to the light and air.

HULL LITERARY AND PHILOSOPHICAL SOCIETY.

May 7.—The sixteenth annual meeting of this Society was held on Tuesday evening, CHARLES FROST, Esq., President, in the chair.—J. B. BRIGGS, Esq., Treasurer, read the financial statement, which exhibited £637. 2s. 8d. on the debtor, and £278. 3s. on the creditor side, leaving debts to the amount of £358. 15s. 3d. unpaid; the balance owing twelve months before was £298. 2s. 4d. There was, therefore, an increase of debt to the amount of £60. 12s. 11d.; but this was more than counter-balanced by an outlay of £107, in the making and fitting-up of cases for the exhibition of specimens of Geology in the museum. An excellent report, proving the great utility of the Society, and the value of its museum—as pronounced by several of the most eminent men of the present day, in their various departments, who had visited it during the past year—was read by the President. A resolution to open the museum to strangers on payment of one shilling each, or half-a-crown for a party, was passed; but this resolution does not interfere with the unlimited issue of gratis tickets by all the members of the Society. It was also resolved to hold the ordinary meetings every alternate Tuesday, during the session, instead of the first and third Tuesdays in the month. It was further resolved to repeat the invitation given last year to the British Association to hold an early meeting in this town. Thanks were voted to the retiring Council, and particularly to the Secretaries, for their extraordinary and gratuitous services in the museum. The efficient services of the Treasurer were also particularly noticed. The meeting then proceeded to the election of a new Council; the result was as follows:—*President*—CHARLES FROST, Esq.; *Vice-presidents*—THOMAS THOMPSON and H. R. FRANCIS; *Secretaries*—THOMAS FROST and T. J. PEARSALL; *Council*—H. COOPER, R. CRAVEN, W. H. DIKES, Dr. FIELDING, A. W. GADSDEN, T. W. GLEADOW, J. E. LEE, H. F. LOCKWOOD, F. S. A., HENRY QUIN, R. H. SPENCE, JOHN TERRY, ROBERT WELLS.

DUBLIN ROYAL ZOOLOGICAL SOCIETY.

By the *Dublin Monitor* of May 18, we learn that Dr. Scouler had recently delivered the fifth course of lectures by members of the above Institution. The class Reptiles formed the subject of the learned Doctor's discourse.

WARRINGTON PHRENOLOGICAL SOCIETY.

During the last session the following is an account of the proceedings of this Society:—1838.—*Oct.* 19.—"On Comparative Phrenology," by Mr. Peter Rylands.—*Nov.* 16.—Mr. P. Rylands read part 2nd of his former paper.—*Nov.* 30.—Mr. W. Robson read an essay entitled "A few Thoughts on Dreaming."—*Dec.* 28.—*Conversazione* on Dreaming.—1839.—*Jan.* 25.—Meeting for general business.—*Feb.* 22.—Mr. Broadhurst read a paper.—Mr. Robson having resigned his office as Corresponding-Secretary, Mr. P. Rylands was elected.—*March* 8.—An essay on the "Construction of Phrenological Busts" was read by Mr. Grierson, President.—*April* 4.—H. C. Watson, Esq., Corr. Mem., read a paper on "A Case of Nymphomania, proving the influence of the Cerebellum over the Amative Propensity;" communicated to Mr. W. by a Foreign physician.—*May* 3.—Donations of a bust of Eugene Aram, from Mr. Watson, and of several numbers of *The Naturalist*, from Neville Wood, Esq., Corr. Mem., having been announced, and other general business transacted, the Society adjourned for the usual vacation, until the first Friday in September.

Arrangements having been made by the Council of the Society, Mr. Watson lately delivered a course of lectures in Warrington on Phrenology, which have produced an impression highly favourable to the science.

EXTRACTS FROM FOREIGN PUBLICATIONS.

ZOOLOGY.

1. Eagle-hunting in Corsica.—Three brothers, of the village of San-Goodsanic, in Corsica, agreed to plunder an Eagle's nest, which they observed at the bottom of a most fearful precipice. The enterprise was of great risk, as only one of the three brothers could make the attack; and he had to be let down by a rope, which the other two were to fasten, and to guide from above. They drew lots for the post of danger, and the lot fell upon the youngest, a brave hearty lad, who lost no time in providing himself with a sharp sword, and a stout rope

capable of bearing his weight. The rope was made fast by the other brothers, and wound round the body of the young adventurer. The latter then descended, avoiding all the perils of sharp points and jutting crags, until he made good his landing on the rock where the nest was placed. He took possession of his prize, which contained four eaglets, and then gave the signal of ascent. The brothers above instantly obeyed it, and the young man was gradually drawn up, finding, however, no slight difficulty in guarding his head from the rocks and preserving his well-earned prize. When only half of the ascent was attained, a fearful, though not wholly unlooked-for, incident occurred. The parent Eagles returned for their young, and attacked in the fiercest manner the plunderer of the nest; other Eagles joined in the assault, and the young man had much difficulty in saving himself from their fury. He flourished the sword above his head, and struck several blows at the most audacious of the Eagles. While thus occupied, he felt the rope in a slight degree relaxed, and, glancing his eye upwards to ascertain the cause, saw, to his horror, that he had allowed the edge of the sword to grate against the rope, and that the rope was cut through at least one half. His alarm on this discovery may well be conceived—every moment he expected that the rest of the cord would break with the weight of his body, and he made up his mind to die a dreadful death. In the mean time the brothers on the top of the rock continued to haul up the rope, until they were enabled to stretch out their hands and safely grasp the young man. They rescued him from almost certain death; but, a few minutes had produced the effects of age on his constitution; his hair was changed to grey, and it was a long time before his mind recovered the shock.—*French paper.*

2. A Parrot Anecdote.—The chief mate told us, writes Capt. Bennett, that on board a ship in which he had served, the mate on duty ordered some of the youths to reef a main-top-sail. When he got up, he heard a strange voice saying, "It blows hard!" The lad flew down in a trice, told his adventure, and a second was sent up, who as speedily came down, declaring that an unearthly voice had whispered in his ear, "It blows hard!" Another went, and another, but came back with the same tale; at length the mate went, and heard the same words, "It blows hard!"—"Ay, ay," says he, "old un, but, blow it ever so hard, we must ease the earrings for all that;" and, looking round, he espied a fine Parrot perched on one of the clues, which had probably escaped from some other vessel, and had not been discovered till he had created an alarm in this.

3. Geese and their Representatives.—A French priest, who had usually a very small audience, was one day preaching at the church in his village, when, the doors being open, several Geese (with their gander) came stalking up the middle aisle. The preacher, availing himself of the circumstance, observed that he would no longer find fault with his district for non-attendance; because,

though they did not come themselves, they had sent their representatives.—The sect of the worthy preacher is not mentioned; but, to whatever class or genus the *congregation* might appertain, the *pastor* had evidently as much of the *Fox* about him as most of his fraternity.

GEOLOGY.

4. New Fossil *Carnivora*.—The indefatigable M. Lartet, of whose labours we have so often spoken, announces the discovery of two fossil *Carnivora*, one of which appears to constitute a sub-genus, intermediate between the Badger and the Otter, and the second approaching to the Dog, differing but little from that gigantic fossil which he has described under the name of *Amphicyon*. He is of opinion that the latter is the same animal as that of which some remains were found at Epelsheim, and which constitutes the genus *Agnotherium* of M. Kaup. "There are," says M. Lartet, "a considerable number of fossil mammifera found on the borders of the Rhine, which appear to me to be identical with those which are daily brought to light at the foot of the Pyrennees. These affinities are the more interesting, because the intermediate countries, Auvergne, for instance, possessed very different races of animals."

REVIEWS OF NEW PUBLICATIONS.

An Introduction to the Natural History of Fishes; being the Article "Ichthyology," from the Seventh Edition of the *Encyclopædia Britannica*. With above 130 Illustrations. By James Wilson, F.R.S.E., M.W.S., &c. Edinburgh: *A. and C. Black; Simpkin and Co.*, London. 1838. 4to. pp. 90.

It is well known that in Ichthyology, as in other branches of Zoology, Aristotle and Pliny were the world's earliest instructors: and such was the real labour and ability at that time necessary to produce a work on Natural History, and such the paucity of labourers in this wide field, that, subsequent to the time of the above-named authors, many centuries elapsed before any works of note were laid before the public. In the lapse of time, indeed, a few books were published; but they were mere meagre compilations from the ponderous tomes of their more worthy predecessors. At length, however, light again dawned with renewed splendour, about the middle of the sixteenth century, when Belon, Rondelet, and Salviani may be said to have laid the foundation of modern Ichthyology. Towards the close of the seventeeth century, our illustrious

countrymen, Willughby and Ray, united in the elaboration of an original history of British fishes. The writings of these several authors formed the basis whereupon, in the middle of the eighteenth century, the mighty Linnæus founded his gigantic and triumphant labours. To the Swedish naturalist it was reserved to shape into a science what had hitherto—despite the brilliant researches of preceding authors—been a mass of undigested or ill-digested materials. From the time of Linnæus to the present day, his disciples—dazzled by the surpassing excellence of his system—have conceived that his classification must last for all succeeding ages. The disciples failed to catch the noble spirit of their master. They might have perceived the impossibility of any one man's framing a classification of all Nature which should at once and for ever be recognized as complete, even supposing there remained no further discoveries of species to be made. But the reflecting and experienced naturalist is aware that the addition of even a single species may render necessary an alteration. What ignorance, then, of natural laws must any one display who, well knowing the great addition to our knowledge of species within the last fifty years, would think fit to cry out against the smallest amendment upon the plan of Linnæus! The doctrine of finality cannot possibly enter with advantage into any department of knowledge. Men may decree that enlightenment shall cease at a certain point; but God has declared that the tendency of the mind is progressive, and therefore all attempts at retrogression are as ridiculous as they are futile. While, then, we shall be ever ready to defend Linnæus from the aspersions of opponents, let us not forget to shield him from the equally injudicious support of apparent friends.

It was now comparatively easy for subsequent writers to smooth down the asperities in that broad road fashioned by the mighty mind of the Swede; for though in some respects the difficulties of Natural Science increase and multiply in proportion as we advance to perfection, yet the grand point must ever be considered the attainment of the first rational and comprehensive *system*.

Mr. Wilson pursues the classification of Cuvier, to whose admirable works, on both the introductory and systematic departments, he expresses himself greatly indebted.

Into any criticism or analysis of Mr. Wilson's volume it will be unnecessary to enter, his treatise being merely intended as an introduction to the science. The descriptions of the various groups and of species will be of great assistance to the student, while the numerous well-executed steel plates will serve still further to explain and illustrate the subject.

An Introduction to the Natural History of Birds; being the Article "Ornithology," from the Seventh Edition of the *Encyclopædia Britannica*. With 135

Figures. By JAMES WILSON, F.R.S.E., M.W.S., &c. Edinburgh: *A. and C. Black; Simpkin and Co.*, London. 1839. 4to. pp. 100.

THIS volume opens with a bibliographical history of Ornithology, from the time of ARISTOTLE to the present day. Having elsewhere (*Orn. Text-Book, passim*) freely descanted on this topic, it will not now be requisite to tarry here, further than to venture a few remarks on Mr. WILSON's observations. In discussing the writings of LINNÆUS, the author very properly gives his readers an outline of the system of that great naturalist. Being the basis and guide to all other systems, this is neither more nor less than every introduction to any branch of Natural History might be expected to do. Besides, this plan has the manifest advantage of allowing the student his choice between the Linnæan system and the more modern classification almost invariably followed in the body of such treatises at the present time. The amount of species in the class of birds, says our author, with which LINNÆUS had to form his system, did not greatly exceed *nine hundred*. This statement has been stigmatised as incorrect, though probably it is not far from the truth. TURTON's edition (1806) of the *Systema Naturæ*, indeed, contains the names of about 2,800 species; but it must be remembered, that that very incorrect edition is translated from a late revise of the original work, by GMELIN. Now Dr. GMELIN, it is well known, derived his knowledge of hundreds of species, wholly unknown to LINNÆUS, from our distinguished countryman, Dr. LATHAM; and Dr. TURTON, again, has added many species from other sources. TURTON's four thick volumes ought never to be considered as the work of LINNÆUS; and—barring synonyms—the last edition edited by LINNÆUS probably contains less than 1,000 species. The number has since that period been multiplied not less than ten times, and may now safely be estimated at 10,000.

The "sumptuous" productions of GOULD, AUDUBON, LESSON, &c., the scientific volumes of SWAINSON and TEMMINCK, the writings of the accurate and intelligent MONTAGU, and SELBY, with many other able authors of the present day, are alluded to with just commendation; but the not over courteous epithet "eccentric" is, *apud* RENNIE, applied to Mr. WATERTON's "well-known *Wanderings*." It is stated that Dr. WAGLER—author of *Systema Avium*, only one part of which was published—"died not long ago, in consequence of a gun-shot wound accidentally inflicted by himself while sporting; and the non-completion of his work may be regarded as a great loss to ornithologists."

Mr. WILSON appropriately remarks, in a subsequent paragraph, that "a considerable flock of ornithological authors has recently appeared above the horizon, to enlighten, however, rather than obscure our vision," particular allusion being made to Mr. SLANEY's *Outlines of the Smaller British Birds*, Mr. STANLEY's *Familiar History of Birds*, Mr. JENYNS's *Manual*, Mr. MUDIE's *Feathered*

Tribes, and Mr. Eyton's Supplement to Bewick. "Of these and other cotemporary writers, the reader will find more ample notice in Mr. Neville Wood's *Ornithologist's Text-Book* of 1836." After enumerating the "works which relate particularly to the more musical of the feathered tribe," as Bolton's *Harmonia Ruralis*, Mr. Sweet's *British Warblers*, Mr. Syme's and Mr. Wood's works on *British Song-Birds*, Bechstein's *Cage Birds*, &c., and Mr. Yarrell's "much-desired *History of British Birds*," our author alludes to Mr. MacGillivray's *Rapacious Birds of Britain*, and *History of British Birds*:—"Last, though the reverse of lowest in our estimation, stand Mr. MacGillivray's characteristic volumes. In regard to these two works, readers may probably differ in their appreciation of some insulated passages, critical or otherwise, not essential to the exposition of the subject in hand; but we think all must agree that they are written in a clear, vigorous, and original manner, and devoid of that vapid spirit of compilation which pervades the labours of so many of the ingenious author's predecessors and cotemporaries."

The structure, classification, and descriptions of birds are then passed through in the able manner which we have before had the pleasure of commending in Mr. Wilson's volumes. The work concludes with synopses of the systems of Illiger, Temminck, Vigors, and Swainson, and an enumeration of the birds of Europe, 310 of which are regarded as residents in or visitants to Britain.

The plates are in much the same excellent style as in preceding volumes, and bear a considerable similarity in style to those of "honest George Edwards." We confess ourselves glad to notice this departure from the glazed modern style; and the effect would be still better were the figures coloured.

A Floral Guide for East Kent, &c.; being a Record of the Habitats of Indigenous Plants found in the Eastern Division of the County of Kent, with those of Faversham particularly detailed, and definitely exhibited; together with brief Remarks on the Uses of the several Species in Rural or Domestic Economy, Agriculture, Medicine, and the Manufactures; and on their Classical and Historical Associations; deduced from various Authorities. In two Divisions, illustrated by two Maps. By M. H. Cowell, Corr. Mem. and Loc. Sec., for Kent, of the Bot. Soc. of London. Faversham: *W. Ratcliffe*, Court-Street. 1839. 8vo. pp. 98.

The plan of the work seems good, and its price is moderate; but it would have been more convenient as a book of reference had it been small 8vo. or 12mo. It may also be objected that the size of the work has been needlessly increased by the too frequent repetition of some of the commoner species; but the author

pleads a desire to afford the opportunity of collecting as many species as possible in each direction, in order to save time and trouble; and also to provide against those changes which often cause the entire eradication of plants from particular localities.

Mr. Cowell has followed the nomenclature of Sir J. E. Smith, in the *English Flora*, which he selects in preference to that of Dr. Lindley in his "excellent *Synopsis of the British Flora*," because he considers that the Linnæan system, from its simplicity, affords greater facilities to the young botanist, for whose work Mr. Cowell's *Flora* is principally intended; "while, at the same time, the superiority of the natural system, to the more advanced student, is readily conceded. The Linnæan system has been justly called the grammar of the science, and the Jussieuan, its literature. The addition of the synonyms of Lindley's *Synopsis* will, it is hoped, render the work available to those who may prefer his arrangement." Mr. Cowell's views, respecting "artificial" and "natural" systems, perfectly coincide with our own.

The addition of the medicinal properties, &c., will, it is to be hoped, have the effect of interesting the amateur botanist and the student; but the more advanced practitioner would prefer the omission of all such details, as tending to increase the size and price of the book.

Lists of Kentish insects, and land- and fresh-water molluscs are added, but these lay no claim to completeness.

The names of between two and three hundred subscribers are prefixed, and the book is dedicated to the Right Hon. Lady Harris.

Memoirs of the Wernerian Society of Edinburgh, for the Years 1831—7. Vol. VII. Edinburgh: *A. and C. Black; Longman and Co.*, London. 1838.

This volume contains two essays for which were awarded prizes by the Wernerian Society. The first is "On the Geology of the Lothians," by Mr. R. J. H. Cunningham; the second, "On the Fishes of the District of the Forth," by Dr. Parnell. The papers are illustrated by several figures, plain and coloured, and are replete with original research and judicious remarks. They will be read, we venture to affirm, with almost unmingled satisfaction by the geologist and ichthyologist.

The remainder of the volume is occupied with the proceedings of the Wernerian Society from Dec. 1831 to April 1838. This important Institution commands an inconsiderable share of the attention of British naturalists.

Principles of General and Comparative Physiology; intended as an Introduction to the Study of Human Physiology, and as a Guide to the Philosophical Pursuit of Natural History. By WILLIAM B. CARPENTER, M.R.C.S. London: *Churchill.* 1839. 8vo.

WE think, with some of the correspondents of *The Naturalist*, that any of the departments of Natural History may be studied merely for the sake of the pleasure they afford the mind; and, when thus studied, the manner signifies little, so long as the matter affords the gratification and delight which were sought. But this is not the highest object of the pursuit of Natural History. By bringing our minds in contact with the various members of the animal, vegetable, and mineral kingdoms, we may advance from the objects themselves to the laws which regulate their existence, and by the knowledge thus acquired be enabled to increase the subserviency of Nature to Man, and give him more absolute power over the circumstances in which he is placed. There is a high and pure delight that may arise from the contemplation of the simplest object in creation, which may be increased with the number of objects presented to our senses; but the perception of these is but the beginning of pleasure, and not to be compared with the higher feeling that results from looking upon them in their mutual relations, observing their influence upon each other, and tracing their varied forms and habits to those principles by which all Nature is sustained. The fall of an apple might be a subject for interesting thought to the mind of a poet or a moralist, but it became the means of revealing the sublimest truths when presented to the mind of a NEWTON. We know that all mankind are not endowed with the genius of a NEWTON; but at the same time we believe that by neglecting to follow his footsteps, the student of Nature will not derive all the pleasure his pursuits are able to confer. It might require the mind of a NEWTON to discover the law of gravitation, but every one can follow the process of reasoning that led him to the discovery.

We have been led to these remarks as introductory to the notice of the book which is named above, as its contents forcibly remind us, that the study of the mere external forms and habits of organized beings, not only fails to afford so much pleasure and advantage as we should receive from connecting these with the investigation of their internal structure and functions, but that by thus confining ourselves, we may be sometimes led into serious error.

During the latter half of the past century, and the commencement of the present, nothing has perhaps been more remarkable in the history of science than the increased attention that has been given to the study of the animal and vegetable kingdoms. The neglect of this study among the philosophers of Greece and Rome may be easily traced to the prevalence of a system of philosophy which affected to despise the objects of sense, and excluded from its pale the ideas

that were derived from external Nature. With the revival of letters the same spirit manifested itself in Europe, and it was not till the time of BACON that the pernicious tendencies of such views were exposed. At first the minds of men were more forcibly directed to those objects in Nature which yielded most readily to their interrogatories, and under this influence physical science made rapid strides. Unorganised matter was easily subjected to the calculation of the natural philosopher and the crucible of the chemist; but matter endowed with the properties of life required closer research, and rewarded its investigators with much less brilliant and less practically-useful results. On this account the secrets of organisation were seldom pried into, and the naturalist was content to study the mere physical properties which its external forms presented. Objects were collected and described without number, but little or no attempt was made to investigate the laws that determined their existence and relations. This state is, however, passing away, a change has come over the spirit of the times, and the researches of the naturalist are evidently directed to deeper sources of knowledge than the mere external conformation of plants and animals can afford. This spirit has manifested itself in the writings and labours of such men as LINDLEY and GRANT, and we are glad to see it exhibiting itself in those who have been taught from their chairs, amongst whom we recognise the author of the volume now lying before us.

The production of this volume has depended on the increased attention which is paid to the study of the laws of life, and although many works of great excellence have been lately produced, there still was wanted, in the words of Mr. CARPENTER, "a treatise which should give a comprehensive view of the science, embracing whatever general principles may be regarded as firmly established, and illustrating them as fully as could be done within moderate limits, yet without distracting the attention by profuseness of detail." We are bestowing no small praise when we say, that in this we think Mr. CARPENTER has succeeded. We have seldom seen a volume, embracing so wide a field, that has been so free from the faults of profuseness of detail and meagerness of illustration. The work consists of an Introduction, comprehending a general survey of organised structures, and of two books, the one on General Physiology, and the other on Special and Comparative Physiology.

The Introduction commences with some excellent remarks on the study of Anatomy and Physiology, exhibiting the difficulties it presents, and the only mode of contending with them:—"The obstacles that present themselves to the prosecution of these sciences, result more from that difficulty in the ascertainment of facts and the observation of phenomena, which is occasioned by the peculiar condition of living beings, than from any incapability on the part of these facts and phenomena to be comprehended within laws as stable and as definite as those

of physical science." Experiment can be seldom satisfactorily pursued in these researches, but there is a resource which, skilfully used, will gradually clear our way—this is *observation*. By the observation of living beings we may arrive at almost as accurate a knowledge of their functions, as if we could experiment unrestrictedly; for, as CUVIER observes, the forms of animals may be regarded as "so many kinds of experiments ready prepared by Nature, who adds to, or deducts from, each of their different parts, just as we might wish to do in our laboratories, showing us herself at the same time their various results."

In the study of the functions of living beings, Mr. CARPENTER insists on the necessity of comprehending all organised structures, especially regarding the lowest forms, in which the functions of life are performed most free from those embarrassing influences which may be produced by the complication that takes place in the higher forms. We think that this is one of the most important features of Mr. CARPENTER's book, that in treating of the functions of living beings he recognises the importance of examining all organised structures, and makes the laws of vegetable structure and function subservient to the elucidation of those which exist in the animal kingdom.

In pointing out the objects of study of the anatomist, physiologist, and naturalist, he observes, that the duties of the former consist in comparing "the individual organs and functions through all the forms of animated beings in which they are manifested;" whilst the object of the naturalist "is to ascertain the laws which regulate the combination of the separate organs into living fabrics, and govern their adaptation to different modes of existence: he therefore, viewing each organ in its *totality*, arranges similarly-formed beings into the same group, placing, as the character common to the whole, the points in which they agree, and leaving the subordinate differences to be added to this common character, in order to express the qualities of an individual." This forms but a commencement for the higher occupation of the naturalist, the development of "those laws by which the structure of the organised kingdoms of Nature is regulated." For this purpose the naturalist must seek the aid of the physiologist, whilst the latter refers to the former for direction in his researches. As an illustration of the beneficial effects of this mode of research, our author justly refers to the natural system of Botany, as "a beautiful example of this conjoint kind of investigation."

We cannot follow Mr. CARPENTER in his able and in many respects original views of organic structure. This subject is first treated generally; and afterwards the primary tissues in vegetables and animals; and concludes with a brief but accurate survey of the vegetable and animal kingdoms. Were we disposed to be critical, we should feel inclined to question the propriety of some of the analogies the author has pointed out between the vegetable and animal kingdoms.

Analogies may be carried too far, and science by their means made fanciful, the allusions to them being hardly needed where no philosophical deduction can be drawn, or practical application made. Analogy of structure is important in similar objects, as it may point out a community of function; it is also important when it can be traced in a series of objects connecting the higher and lower members by a common indication; but when analogies in the form or disposition of matter are pointed out between remote objects, they can hardly be useful. We allude here to the analogy between the spiral vessels of the vascular tissue of plants, and the tracheæ of animals, which our author has insisted on more than once in his volume. This is a favourite analogy of the French naturalists, and some of them have even named the spiral vessels tracheæ. We cannot stop here to point out the want of intimate analogy between these organs, but the difference between the lowest form of animal in which we find tracheæ, and the plants in which spiral vessels exist, must be evident to all.

In the first book the subject of General Physiology is discussed, and the influence of external agents upon life is considered. The third chapter is devoted to an exposition of the general laws of organic development, and we have no hesitation in saying that it is one of the best digests of the subject in our language. We would especially direct attention to this part of Mr. CARPENTER'S volume, as it is too often supposed that the sciences of Botany and Zoology, including the functions of life, are but a mass of details, that are at present too little understood to admit of the application of any general expressions in the form of laws. But the principles that have already been laid down lead us to hope that the time is not far distant when the laws of organic life shall be expressed by terms as simple as those which combine together the varied phenomena of inorganic masses, when the question of CUVIER shall be answered, and Natural History shall glory in the possession of "its NEWTON."

The author's remarks on the doctrine of a vital principle are very judicious. He condemns the use of the term vital principle, as expressing the cause of certain phenomena which are observed in organic bodies, but thinks there might be no peculiar objection to the use of the term as a convenient expression for the sum of the unknown powers which are developed by the action of vital properties. The use of the term *principle* in science generally is exceedingly vague and unsatisfactory, but when applied to the phenomena of life, is a peculiarly fertile source of erroneous views and conclusions, and if not abandoned altogether, ought only to be used under obvious restrictions.

We could have wished to have followed our author through many of the interesting topics which are discussed, with a masterly hand, in this part of his book, but our limits forbid. In the second book he enters on the subject of Special and Comparative Physiology. This part of the volume embraces the

phenomena of life presented by organic matter as a whole, including the functions of the vegetable and animal kingdoms; and no one that can observe the connection between the functions of life in organic beings, can fail to recognise the importance of such a mode of treating the subject. The functions of organic life are first treated of under the various heads of Ingestion and Absorption of Aliment, Circulation, Formation of Tissues, Respiration, Exhalation, Secretion, Evolution of Light, Heat, and Electricity, and the Reproduction of Organised Beings. The functions of animal life are then discussed under their peculiar phenomena, Sensible Motion, and Sensation. The volume concludes with a chapter on the "evidences of design presented by the structure of organised beings." The author here points out the necessity of the physiologist not resting satisfied with final causes.

"He must disregard," he observes, "for a time, as in physical philosophy, the immediate *purposes* of the adaptation which he witnesses; and must consider these adaptations as themselves but the *results* or *ends* of the general laws for which he should search. The observation of the facts upon which he establishes these laws may have been suggested, and the phenomena themselves brought to light, by the perception of this harmony and adaptation in individual cases; but instances in which it is apparently deficient may be as valuable to him, when considered in this point of view. What, for example, would have been the present state of vegetable morphology, which explains the metamorphoses of the organs composing the flower, if the philosophic botanist had adopted the final cause or function of the different parts as his guide in investigating the laws of their structure, instead of tracing that structure through all its regular and irregular forms, with a total disregard to their function? * * * * * * We are not to judge of the value of facts in Physiology by their immediate and obvious bearing upon the phenomena of vital action; for those which would seem to be of the most trifling consequence, if viewed in this light only, are often found, when properly applied, to possess an unexpected and momentous import."

From our remarks it will be seen that we consider this a work of no ordinary pretensions, and we strongly recommend it to all who are desirous of gaining a philosophical knowledge of Natural History.——E. L.

LITERARY INTELLIGENCE.

Mr. Shuckard has lately published part i., with wood-cuts, of *Elements of British Entomology*, containing a systematic description of all the genera, and a list of all the species of British insects, with their habits, structure, &c.

SELECTED POETRY.

THE TYRANT OF THE FOREST.

Far in the South, where vast Maragnon flows,
And boundless forests unknown wilds enclose,
Vine-tangled shores and suffocating woods,
Parch'd up with heat, or drown'd with pouring floods;
Where each extreme alternately prevails,
And Nature sad their ravages bewails;
Lo! high in air above those trackless wastes,
With Spring's return the King-bird hither hastes;
Coasts the fam'd gulf, and from his height explores
Its thousand streams, its long indented shores,
Its plains immense, wide opening on the day,
Its lakes and isles, where feather'd millions play;
All tempt not him: till gazing from on high,
Columbia's regions wide below him lie;
There end his wanderings and his wish to roam,
There lie his native woods, his fields, his home;
Down, circling, he descends from azure heights,
And on a full-blown Sassafras alights.
Fatigued and silent, for a while he views
His old-frequented haunts, and shades recluse;
Sees brothers, comrades, every hour arrive,—
Hears, humming round, the tenants of the hive;
Love fires his breast—he woos, and soon is blest,
And in the blooming orchard builds his nest.

CHAPTER OF MISCELLANIES.

ZOOLOGY.

Additional Localities for *Amaræ*.—Mr. Buist has sent me specimens of the following *Amaræ*, all of which were taken near St. Andrews:—*Amara acuminata* (and near Pittenween, Fifeshire), *A. trivialis*, *A. lævis*, *A. plebeia*, *A. puncticollis*, Ryl. (one specimen), *A. infima* (one specimen).—Peter Rylands, *Bewsey House*, *Warrington*, *June* 13, 1839.

Nidification of the Starling.—In the interior of the weathercock of the Abbey tower, Tewkesbury, is a Starling's nest, with five young birds, being

upwards of 150 feet from the ground. One of the parent birds, a few evenings since, was observed to ascend and descend 57 times within an hour.—*The Charter*, *June* 16, 1839.

The Red-crested Pochard (*Fuligula rufina*, Steph.) in the London Market.—When I was in London last November, I had the pleasure of seeing a specimen of that rare visitant the Red-crested Pochard, which was purchased by Mr. Bartlett the same morning. It is the only specimen I have ever seen. —J. D. Salmon, *Godalming*, *Surrey*, *Feb.* 19, 1839.

Singular Capture of a Hawk by a Fieldfare.—On Tuesday week, at Glastonby, Cumberland, a Hawk pursued a Fieldfare, which sought refuge in the house of Mr. John Bailey. The pursuer and fugitive flew along a dark passage into the kitchen, and thence into the parlour, where the Fieldfare took shelter amongst some flower-pots in the window. The rapacious Hawk overturned the pots, and seized its victim, when a young woman, who had seen the whole of the chase, snatched the Fieldfare from the talons of the felon-bird, and the latter suffered death for his crime.—*Gateshead Observer.*

Secretiveness of the Partridge.—The Partridge, when sitting, seldom rises from its nest until you almost have your hand upon the bird, and it will always lie close until the last possible moment. A few days ago a small brown creature —which we at first took for a Rat, but immediately afterwards found to be a Partridge—slipped out of a tuft of Grass into a hedge close by. There were, sure enough, sixteen eggs in the nest; but we quitted these to trace out the old bird. After a fruitless search for a few minutes, we returned to the spot where, to the best of our recollection, the nest lay; but it was no where to be found, until, at length, the selfsame bird flew off from its nest to a considerable distance, having, it seems returned to the tuft of Grass after the first disturbance! When the young birds are hatched, the parents will use all kinds of devices to allure a foe from their offspring; but while they are still in the shell, passive Secretiveness is alone resorted to.—Ed.

March of Intellect in the Brute Creation.—In the neighbourhood of Lewes, and on the road to Newhaven, there is on a building an inscription in large letters, as follows :—"Cooter's Academy for young Horses;" and further on, a direction "To the School."—*Northern Star*, *April* 6, 1839.

Another Instance.—"*Advertisement.*—Wanted, a coachman to take care of a pair of Horses of a religious turn of mind."—*Philadelphia paper.*

Hydrophobia in the Sheep.—Symptoms of madness in Sheep are, it appears, somewhat different from those in other animals; they make no attempt to bite each other or human beings; nor have they any dread of water; but they are pugnacious, and attempt to strike with their heads the persons who approach them.—*Shrewsbury Chronicle.*

The Royal Court converted into a Poultry-Yard.—Mr. Gibaut presented himself at the bar of the Court, bringing with him seven couple of fowls, which he had tendered to her Majesty's Receiver for *poulage*, being the old feudal due enacted by tyranny for allowing persons to light fires in their dwellings. The Bailiff positively refused to enter into the question, for if once a precedent was established by which the Jurats were constituted judges of the requisite fatness of cocks and hens, their time would be fully occupied with the feathered tribe, to the detriment of unfledged bipeds. The Receiver complained, that he was yesterday offered fowls, which he rejected, and which actually died in the course of the day. We would recommend this important cause to be *renvoyée devant Commis*, with a power to call the women under the halls as witnesses.

Cunning of Birds.—The Meadow Pipit will often flutter away from its nest, when suddenly disturbed, as if wounded and in great pain, contriving to keep just out of your reach. If you follow, either out of curiosity or from ignorance of its habits, it will make off at great speed, and when it has enticed you a considerable distance, suddenly takes wing, and flies back to the nest. But if you stand unmoved by its arts, it remains close to you, tossing and tumbling about, at length hopping into a neighbouring bush, and gradually recovering from its "temporary insanity."

We never knew, before the present year, that the Blackcap would employ a similar stratagem. One of these birds, in quitting a nest of recently-hatched young in a clump of Nettles, shuffled about in this manner with great spirit, until it became concealed among the herbage. This nest was within a few yards of a Meadow Pipit's nest, likewise among Nettles, and the proprietor of which acted in a manner similar to its near neighbour.—Ed.

Voracity of the Eel.—While one day standing on a low ledge of rock, enjoying the delightful scenery of the Tay, I witnessed a very striking, and so far as I know, novel exhibition, touching Natural History, being nothing less than a chase upon *terra firma* of a Crab by an Eel, and illustrative in a remarkable manner of the eagerness with which the latter animal pursues its prey. My attention was first drawn to the spot by a rustling sound, where I saw the fugitive in the act of emerging from the water. The Eel, of large dimensions, soon followed. After promptly effecting a landing on the rock on which I was standing, which both of them did with great dexterity, the Crab took to his heels with all manner of despatch, and soon showed his pursuer the advantage of the possession of a supply of limbs. The Eel, however, nothing daunted, although labouring under the primeval curse of the Serpent, dashed after him with the utmost eagerness; but it was soon obvious that the locomotive machinery of the latter was dismally at fault. He wormed, twisted, and oscillated himself to and fro to comparatively little purpose, although in this way he kept up the chace for

a considerable distance, until at length, on my approach, both of them made a short cut, and got again into the water.—*Correspondent of the Cheltenham Chronicle, March* 21, 1839.

Anecdote of the Newfoundland Dog.—Take another story of this noble beast, which I know to be founded on fact:—A vessel was driven on the beach of Lydd, in Kent. The surf was rolling furiously—eight poor fellows were crying for help—but not a boat could be got off to their assistance. At length a gentleman came on the beach, accompanied by his Newfoundland Dog. He directed the attention of the animal to the vessel, and put a short stick into his mouth. The intelligent and courageous fellow at once understood his meaning, sprang into the sea, and fought his way through the waves. He could not, however, get close enough to the vessel to deliver that with which he was charged, but the crew joyfully made fast a rope to another piece of wood, and threw it towards him. He saw the whole business in an instant: he dropped his own piece, immediately seized that which had been cast to him, and then, with a degree of strength and determination almost incredible, he dragged it through the surf, and delivered it to his master. A line of communication was thus formed, and every man on board was rescued from a watery grave.—Youatt's *Humanity to Brutes.*

Reason in the Lower Animals.—The acts of some birds and Monkeys, observes Lord Brougham, cannot be accounted for by instinct, for they are the result of experience, and are performed with a perfect knowledge of the end in view; they are directed peculiarly to that end; they vary according to the circumstances in which they are performed, and the alteration made is always so contrived as to suit the variation in the circumstances. Some of these acts show more sagacity, according to Locke's observation, than is possessed by many men. The existence of a comparing and a contriving power is, therefore, plain enough; and, on the whole, I conceive that a rational mind cannot be denied to the animals, however inferior in degree their faculties may be to our own.

Eggs of the Marsh and Hen Harriers.—According to Montagu, the eggs of the Marsh Harrier are perfectly white, without any spot; Latham asserts that they are spotted with brown; Selby states that they are white, and not spotted; and Hewitson observes that, although for the most part white, they are sometimes also spotted and smeared with brown. An egg in our collection, presented by Mr. Rudston Read, is blotched and spotted with dirty brown on one side, and has a very few small spots on the other side. At first sight the egg might be supposed to be merely soiled, but we have no doubt the colour is natural. Our specimen of the Hen Harrier's egg (also given us by Mr. Read) is similarly marked, but the spots are still fewer in number. There can, at the

same time, be no question but the eggs of both these birds are often white and unspotted.—Ed.

Localities for the Nightingale in Yorkshire.—We have repeatedly heard a Nightingale singing in a small Fir-plantation close to the road-side, between Owston and Doncaster. There is a stream in the immediate vicinity. Now this is exactly the kind of locality in which Philomel appears to delight. *The Yorkshireman* newspaper of May 4, says:—"We have been favoured with the sight of one of these delightful singing-birds, which was caught the other day in Cawood Wood, the property of his Grace the Archbishop of York, by Mr. T. Wilson, of Layerthorpe, and a friend. This bird is in full plumage, and already nearly tamed. They are very rarely seen in this neighbourhood."—Ed.

A Jew de Mot.—Some one asked a wealthy Jew to take venison. "No," said the capitalist, "I never eat wenshen; I don't tink it so coot as mutton." "Oh," replied his friend, "I wonder at your saying so; if venison is not better than mutton, why does venison cost so much more?"—"Vy? I will tell you vy; in dish varld de people alwaysh prefersh vat ish *Deer* [dear] to vat is *Sheep* [cheap].—*Mark-Lane Express.*

Quickness of Ear of the Cat turned to good Account.—During the driving of the Meer-Brook sough, in 1811, it was necessary to bore a hole from the surface down to the heading, for the purpose of giving air to the miners. The spot for commencing having been ascertained by careful drilling, the hole was bored to the depth of 104 fathoms, but owing so the rods having come in contact with a hard substance in the Shale called a cank, they swerved very much from the perdendicular. At this depth relief should have been given, but it was now discovered that the boring tool had fallen somewhere wide of the mark, and there was nothing to work by but the sound produced by movement of the rods, which although distinctly heard appeared to come from all points. In this dilemma a person named Souter, who is now in the employ of Mr. Jessop, of Butterley, hit upon a novel expedient to ascertain the precise point from whence the sound proceeded. To this end Souter accompanied the miners to that part of the sough where the noise was heard, taking with him his Cat. Those below preserved a profound silence, and one of the men above, agreeable to previous arrangement, struck a distinct blow on the rods. Puss instantly turned her head in a particular direction, and on her position being altered, and the blow repeated, her attention was still drawn to the same point. The miners, trusting to the superior hearing of the Cat, commenced driving in that direction, and after cutting through four feet of rock, came, as they expected, direct on the rods. The above was communicated to our correspondent by Mr. Wheatcroft, mine agent, of Matlock Bath, who at the time was working in the sough.—*Courier.*

Anecdote of the Raven.—An amusing anecdote was lately told me of this bird. Between Scarborough and Bridlington, by the road-side, stands the Dottrel Inn, in the yard belonging to which a tame Raven was kept (by no means an uncommon occurrence in such places). From the repeated opportunities the bird had of hearing the word "holla!" used by the equestrian at the door when desirous of quenching his "lowin drouth," it learned to articulate the dissyllable with great nicety, and, as will be shown, once in its lifetime much to the purpose A person who had been amusing himself with shooting sea-fowl at Speeton Cliffe was returning to the hostelry for refreshment, and prudently wished to discharge the loaded gun previous to entering the house. At this moment "Corby," who was taking an airing on the wing, came within range of the piece. To the sportsman this was irresistible—the gun was levelled—but before the fore-finger could be called into fatal action, the word "holla!" smote the ears of the terrified gunner. It was indeed a voice from the clouds! The piece was instantly lowered from the shoulder, and there the man stood in silent horror and astonishment, watching the homeward flight of poor Ralph.—Patrick Hawkridge, *Scarborough, Aug.* 7, 1837. [No doubt the poor fellow considered his case similar to that of "Balaam and his Ass!"—Ed]

Wonders of the Insect Creation.—Mr. Denny, Sub-Curator of the Leeds Philosophical Society (whose scientific acquirements and perseverance in scientific inquiries are highly appreciated by all connected with that institution), has been for some time engaged on an undertaking which at first may appear singular, if not disgusting, but which, like all investigations into the works of Nature, is sure to be productive of increased reverence and admiration among all who are wise enough to make those works the objects of their attentive study. He has resolved on endeavouring to obtain a specimen of every kind of parasitic insect belonging to the order *Anoplura* of Leach, and to give in a single volume both a correct representation and a minute description of each. The greatest number of species of Lice enumerated in any catalogue of British insects hitherto published, is 90; but Mr. Denny has already obtained no fewer than 140, and he believes that there are perhaps 160. We trust that as his book (which is to be published by subscription, at a guinea) will be materially enlarged, and of couse rendered more expensive to the author, as well as improved, by the increased number of plates and descriptions of parasitic insects, many who can afford to encourage talent and industry directed to really honourable objects, will add their names to the list. Distinguished men of science, such as Dr. Buckland, feel an interest in the completion of this undertaking, and have exerted themselves to procure specimens for the author. Mr. Denny believes that almost every species of quadruped and bird has its peculiar parasite, and that many of them are infested by two, three, or even five distinct species. As we have stated, he has already obtained 140 different

species, but he informs us that none of the following have been procured—notwithstanding all his exertions. The Lice which infest the Fox, Otter, Polecat, Squirrel, Hedgehog, Mouse and Rat, Shrews, Mole, Dormouse, Hare, Seal, Cat, Bat, Pine Marten, and Roebuck, among our quadrupeds; and the Kite, Goshawk, Kestrel, Eagle, Owl, Little Owl, Roller, Nut-cracker, Wren, Blue Tit, Goldfinch, Pine Grosbeak, Redbreast, Ring Ousel, Water-ousel, Pratincole, Crane, Night-heron, Ibis, Bustard, Little Bustard, Northern Diver, Black Stork, Coot, Quail, and Hawfinch, among British birds. We are sure Mr. DENNY would feel greatly obliged to any parties who have opportunities of procuring and sending to him specimens of these Lice; such parties will at the same time render a service to Natural History itself. The Lice on some of the creatures enumerated are extremely small, and can only be seen on a careful examination.

ANIMAL INSTINCT.—An old Monkey, at Exeter 'Change, having lost his teeth, used, when nuts were given to him, to take a stone in his paw and break them with it. This was a thing seen forty years ago by all who frequented Exeter 'Change, and DARWIN relates it in his *Zoonomia*. But I must say that he would have shewn himself more of a philosopher had he asked the showman how the Monkey learned this expedient. It is very possible he may have been taught it, as Apes have oftentimes been taught human habits. BUFFON, the great adversary of brute intelligence, allows that he had known an Ape who dressed himself in clothes to which he had become habituated, and slept in a bed, pulling up the sheets and blankets to cover him before going to sleep; and he mentions another which sat at table, drank wine out of a glass, used a knife and fork, and wiped them on a table-napkin. All these things, of course, were the consequence of training, and showed no more sagacity than the feats of dancing Dogs and Bears, or of the learned Pig—unless it were proved that the Ape on being taught these manipulations became sensible of their convenience—and voluntarily, and by preference, practised them—a position which no experiments appear to support. SMELLIE, however, mentions a Cat which, being confined in a room, in order to get out and meet its mate of the other sex, learnt of itself to open the latch of a door; and I knew a pony in the stable here, that used both to open the latch of the stable and raise the lid of the corn-chest—things which must have been learnt by himself, from his own observation, for no one is likely to have taught them to him. Nay, it was only the other day that I observed one of the Horses taken in here to Grass, in a field through which the avenue runs, open one of the wickets by pressing down the upright bar of the latch, and open it exactly as you or I do.—Lord BROUGHAM's *Dissertations on Natural Theology.*

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THE BOTANICAL LOOKER-OUT.*

No. XII.—June.

"I dreamt that at even a white mist arose
Where the hedge-row Brambles twist;—
I thought that my love was a sweet wild Rose,
And I the silvery mist!

I dreamt that my love was a sweet wild Pea
All cover'd with purple bloom;
And I, methought, was an amorous Bee
That lov'd the rich perfume.

Again—I was where the moon did line
The forest with silver bright;—
I thought that my love was a wild Woodbine,
And I—a zephyr light."

Anonymous.

I have not the honour of knowing the poet or poetess who seized upon these flowery similies; but to a botanical "looker-out," like myself, who, of course, ought to be up to every thing that the use of flowers, in season or out of season, will by possibility command at this dreamy time, they come in not inappropriately. This is, indeed, making the most of flowers—to enjoy the felicity of having them the companions of our dreams, and not only so, but to have our loves transformed into them, so that while *they* lose none of their delicacy or beauty, they are, at all events, prevented from running away from us; while, as "amorous Bees," *we* are allowed to fly about in all directions over the gay parterre—thanks, Mr. "Anon," for this bright idea, which, no doubt, our dear *loves* will at once sanction with their kind approval! It would also be a great help, occasionally, to a botanist, to become the "silvery mist," as eminences might then be visited, where curious flowers grow, without the toil of scaling

* This is one of a beautiful series of articles in course of publication in the *Cheltenham Looker-on*. They appear anonymously, and we leave our readers the pleasure of discovering their authorship. —Ed. *Nat.*

them at risk of life or limb, or some "dishonest wound" in coat or inexpressibles! For, strange to say, we have had friends who shrank to gather the Samphire or Sea-mallow on their craggy Lime-stone ledges; and could scarcely screw up their courage to seize the ancient British Woad (*Isatis tinctoria*), on its time-honoured Red-Marl cliff, with its golden crown, splendid as the *torque* upon the chieftain of old; or if with daring step they *did* ascend the precipitous tumulus, awed by the genius of the place, they sought an easier though longer downward road! Even Botany is not without its incidents.

But we must digress no further—before us, in its glory and beauty, lies the *solstitial Flora*—the indubitable offspring of Summer, and we must "*gather the Roses ere they be withered.*" Scarcely has the sun of June arisen, in favourable years, than a very remarkable change is perceptible in the flowers of the woods, meadows, and gardens. The *vernal* Flora is gone, or at all events a memento of it only remains here and there. The flaming *Poppy* is the first to announce the approach of the Summer solstice, by the display of his scarlet banner, and the Red Lychnis (*L. floscuculi*), in damp places, quickly follows, with its ragged pink petals, whence it is commonly called "Ragged-robin." Next the yellow specious flowers of the common Flag (*Iris pseudacorus*) glitter in the marsh, where a host of splendid bluish-green Dragon-flies, with brown glazed wings (*Agrion virgo*), are fluttering; and conspicuous in the golden meadows, towering above the masses of sweet Honeysuckle Clover, appears the great Summer Daisy (*Chrysanthemum leucanthemum*). Now, too, at last, appears, in its multiform varieties and exuberant fragrance, the *queen of flowers*—

> "Resplendent Rose, the flower of flowers,
> Whose breath perfumes Olympus bowers;
> Whose virgin blush of chasten'd dye
> Enchants so much our mortal eye.
> * * * * *
> Oh! there is nought in Nature bright,
> Where *Roses* do not shed their light!"

The very sight, or even the name of the *Rose*, is sufficient to raise our temperament to the poetical point, and recal a hundred legends and fables relative to this universal favourite, from its colour being derived from the blood of Adonis, down to the "*Rosa-mundi*,"* and wars of the Roses, of our own history. As the Rose is the emblematical flower of *England*, as the Thistle is of Scotland, the Leek of Wales, and the Trefoil or Shamrock of Ireland, it may be interesting to dilate upon it in some degree—popularly, historically, and botanically. The Rose has been ever the favourite theme of apologue—its *flowers* emblematical of

* Literally, flower of the world; hence the play of words on the inscription to Fair Rosamond—"*Rosa-munda*, non *Rosa-mundi*."

the short-lived pleasures of life—its *thorns* of the ever-accompanying adversities: hence, when the late Nabob of the Carnatic addressed Lord CLIVE on the injuries and insults he had received from the English in India, he drew a parallel between himself and a husbandman who had suffered strangers to enter his garden, and thus poetically summed up the melancholy detail,—"The flowers of the Rose have fallen, and the stalk, with all its thorns, alone remains in my hand." In fact, we can scarcely image to ourselves a Rose *without* thorns; and MILTON, to depict the superior ambrosial pleasure afforded by Eden, makes it abound with

"Flowers of all hues, and *with thorn* the Rose."

Yet it is curious that there is actually a *thornless* species of Alpine Rose, called by botanists *inermis*, or unarmed, from this remarkable circumstance. Another fact with regard to the Rose is, that the five sepals of its pitcher-shaped calyx are almost invariably thus arranged,—two are pinnate or bearded throughout, two are simple or unbearded, and one is pinnate on one side only. This gave rise to an old monkish enigma, which we thus translate—

Five brothers take their stand,
Born to the same command;
Two darkly bearded frown,
Two without beards are known,
And *one* sustains with equal pride
His odd appendage on one side.

This may be verified by reference to a Dog-Rose in any hedge, but it hardly applies to the Chinese or Indian Roses. In the East Roses have been ever especial favourites from the earliest times; beds of Roses are no poetical figure there; and in Persia, according to Sir R. KER PORTER, every garden and court is crowded with its plants; every room is fragrant with ever-replenished vases of them, while full-blown flowers strew every bath; and in the delicious gardens of Negaanistan, the eye and the smell are not only regaled by the most beautiful and fragrant Roses, but the ear is enchanted with the warblings of multitudes of Nightingales, whose notes seem to increase in melody and softness with the unfolding of their favourite flowers.

Father CATRON, in his *History of the Mogul Empire*, thus accounts for the origin of the celebrated Otto-of-Roses, now so esteemed as an indispensable appendage to a lady's boudoir. It appears that the Princess NOURMAHAL, in the true style of Eastern voluptuousness, once filled an entire canal with Rose-water, upon which she made frequent sailing-excursions, in company with the Great Mogul. The heat of the sun causing the disengagement of the essential oil from the Rose-water, it was observed floating upon the surface, and thus was made the discovery of the essence (otto) of Roses. Near Damascus is the famous plain of Roses, solely dedicated to the making of the attar, which, for some miles, is

thickly planted with Rose-trees, of which great care is taken. This attar, or otto of Roses, is the most remarkable of all the preparations from the flower, and has the consistence of butter, becoming liquid only in the very hottest weather. It is made almost in the way indicated by its accidental discovery, only that the Rose-petals are put into a wooden vessel with pure water, first exposed to a powerful heat, which forces the oil to the surface, when it is gathered, and then congealed by cold: but so tedious is the manufacture of any quantity, that half a drachm of the attar can scarcely be obtained from 100lbs of Rose petals. The scent of the minutest grain of the genuine essence, is, however, very powerful.

In an odour-breathing little volume, entitled *Memoirs of the Rose*, which we have just picked up to consult, it is observed,—"The Rose, you are aware, is not only the flower of love, and the emblem of beauty, but is also considered the symbol of *secrecy*. A kiss is often taken and allowed '*under the Rose.*'* A belief that two young companions have become lovers, is a suspicion whispered —'*under the Rose.*' The certainty of arrangements for an intended marriage often transpires—'*under the Rose;*' and whenever I greet the full-blown impression of your exquisitely-engraven seal, with its appropriate motto—'*Sub Rosâ,*' I always anticipate beneath it, if not a poetical kiss or a lover's secret, yet expressions of kindness and feelings of friendship, which are sacred and inviolate." As the origin of this secrecy, "under the Rose," it is said that CUPID, on some occasion, bribed HARPOCRATES to silence by the presence of a Rose (a *golden* effigy of one, it is to be presumed); and hence, at banquets it was formerly the custom to suspend a Rose over the table, as a hint that things might transpire over the convivial board not to be repeated elsewhere. The Rose was always considered a mystical emblem of the Catholic Church, probably from the mention of the "Rose of Sharon" in Scripture; and even now the ceremonial of *blessing the Rose* is still performed at Rome. It was a very common ornament in Gothic architecture.

Our space will only here allow a very brief botanical reference to the numerous species and varieties of Roses, more especially when the different supposed species so approximate to each other, that it is often difficult to draw the line of distinction between them; and LINNÆUS was of opinion that Nature herself had, in this genus, prescribed no certain limits. The lovers of Roses may, however, consult Miss LAWRENCE's work, where ninety kinds are figured; LINDLEY's *Monograph;* the various Floras where they are enumerated; LOUDON's *Arboretum;* or the splendid French work of M. REDOUTÉ, containing descriptions of

* This is all right, and forms the undisputed privilege of a "botanical looker-out," who, with his Red Rose at Midsummer, and Mistletoe at Christmas, need never he without employment or rational amusement.

eight hundred various kinds. More than that number are now cultivated in England in the various nurseries; and, according to M. Desportes, the French can boast no less than 2,533 named varieties. Loudon has, however, only particularly described seventy-seven kinds in his *Hortus;* but then many of these include multifarious varieties. The *centifolia* group, including the Damask, Province, and French Roses, has always been most esteemed: this comprises the favourite Moss Roses, dark, white, striped, and crested. The yellow Eglantine Rose (*Rosa lutea*) makes a conspicuous show in gardens, as well as its fiery variety *subrubra*, while the Sweet-briar is familiar to every one from the grateful scent of its leaves. The Chinese Roses (*R. Indica et semperflorens*) have been extensively cultivated in the present day, from their hardiness and long continuance in flower; and are now to be seen in almost every garden. The *Rosa Banksiæ*, or Lady-Banks's Rose, smooth, and without prickles, is a beautiful shrub, and is remarkable for its pale yellow flowers, which are small, round, and very double, on long peduncles, resembling in form those of the double Cherry, or a small Ranunculus, more than those of the generality of Roses. The Rose, in some form or other, is generally diffused throughout the Northern hemisphere both in the old and new world: the species are, however, less plentiful in the latter; for while North-America produces only fourteen, Europe has twenty-five. Temperate climes are most suited to numerous *kinds* of Roses, for four species only are seen wild in the South of Europe and North of Africa, but then the *individuals* are more luxuriant; for while in the North wild Roses have always single flowers, in Italy and Greece it is not uncommon to find them with double flowers growing spontaneously in the woods and meadows. No Rose has ever been found in South-America or Australia. Sir W. J. Hooker describes nineteen Roses as natives of Britain, of which, perhaps, the most beautiful are *R. spinosissima*, *R. villosa*, *R. cæsia*, *R. Sabini*, and *R. Doniana*. Some of the latter, in their prime of perfection, streaked with white and red, might well inspire a poetical mind to utter the following beautiful sentiment, which coincides with the motto at the commencement of this paper; and thus, insensibly, we shall glide back into the same train of thought with which we set out.

"O gin my love were yon red Rose,
That grows upon the castle wa',
And I mysel' a drap o' dew
Into her bonnie breast to fa'!
Oh, there, beyond expression blest,
I'd feast on beauty a' the night;
Seal'd on her silk-saft faulds to rest,
'Till fley'd awa' by Phœbus light."

Withering has observed, that "not less emblematic of beauty and loveliness than the Myrtle itself, the Rose most aptly designates the tender passion, by its

gradual advance from the bud to the full-blown flower; and in its different stages was wont to be mutually presented, and if favourably accepted, was deemed the pledge of future felicity." The Rose only appears in its perfection of beauty when Summer has called forth all the glories of creation, and the leafy month of June presents its umbrageous woods sleeping in the fervid rays of noon. Hence the Rose is connected with our most delightful feelings, our earliest excursions, our long-desired holidays, our tenderest recollections; and hence the "*couleur de Rose*," with which I have attempted slightly to tinge this paper, has become proverbial for that happy and exhilarating state of feeling which can see no imperfections, and trace no dark shadows within the scope of its imaginings—

> "Long, long be my heart with such memories fill'd,
> Like the vase in which *Roses* have once been distill'd;
> You may break, you may ruin the vase if you will,
> But the *scent* of the *Roses* will hang round it still."

With this sentiment of Moore's, I pause on my flowery excursion—for I can gather no other flowers on the same day with the Rose!

SKETCHES OF EUROPEAN ORNITHOLOGY.

Gould's "Birds of Europe," Part IV.

By Shirley Palmer, M.D.

(Continued from p. 29.)

Great Grey Shrike, *Lanius Meridionalis*,—Pie-grièche Meridionale, *Fr.*—A native of Spain and South-Europe: distinguished from *Lanius excubitor* by superiority of size, and especially the fine vinous tinge of the breast-plumage; from *Lanius minor* by its shorter wings and cuneiform tail. Habits and nidification unknown.

We have here three exquisite figures of the Starling, *Sturnus vulgaris*,—E'tourneau vulgaire, *Fr.*—Gemeiner Star, *G.*,—exhibiting its peculiarities of plumage in the young, and its seasonal variations in the adult, bird. Verily may we assert that, until now, we have never seen justice done, by the hand of the artist, to this beautiful creature. The subject of our plate and *S. unicolor*, are the only European species of the Starling genus.

Avocet, *Recurvirostra avocetta*,—Avocette à-nuque-noire, *Fr.*—Avocetta o-becco-storto, *It.*—Blaufüssige Wasser-sabler, *G.*—Temminck's French designation of this elegant bird is peculiarly apposite: since the *black* colour of the *back*

of the neck serves at once to distinguish the European Avocet from the three extra-European species—*R. Americana*, *R. rubricollis*, and *R. Orientalis*—of this small genus. As the legs of the American species are of a "*light blue*" colour—Wilson, *Amer. Ornithology*, Vol. III., p. 30—the German *blaufüssiger* is obviously inapplicable as a distinctive epithet of the European bird. *C. alba*, of Gmelin, is not an Avocet.

Snow Finch, *Fringilla nivalis*,—Grosbec niverolle, *Fr.*—der Schneefink, G., a male and female, charmingly delineated. Inhabits the Alps, Pyrenees, and other mountainous districts.

Harlequin Duck, *Clangula histrionica*,—Canard à-collier, ou histrion, *Fr.*—Anatra con-collare, *It.*—die Kragen Ente, *G.*—A splendid bird, splendidly delineated in two figures, male and female.

Two species of Thrush, *Turdus musicus*,—Merle grive, *Fr.*—Tordo botaccio, *It.*—Sing Drossel, *G.*; and *T. Iliacus*,—Merve mauvis,—Roth Drossel.—The former, our favourite Song Thrush, is principally distinguishable from the other British species by the *yellow*, and the Redwing by the *black and yellow*, colour of the space between the bill and eye, and might aptly receive their respective specific designations from this invariable character.—See *Analyst*, Vol. III., p. 269. Both figures are beautifully executed by Mr. Gould; but the flank of *T. Iliacus* is rather too highly-coloured: and the tails of both, it strikes us, are unnaturally stunted.

Water Rail, *Rallus aquaticus*,—Rale d'eau, *Fr.*—Gallinella palustre, *It.*—Wasser Ralle, *G.*—In the general outline and character of this well-known bird, Mr. Gould has not exhibited his wonted talent and accuracy. The neck is much too thick, and the whole figure clumsy. The humble production of old Bewick's hand is far more expressive and characteristic. See *History of British Birds*, Vol. II., p. 126.

Richardson's Skua, *L. Richardsonii*.—A common species on the coasts of Britain, and her Northern islands: hitherto confounded with *Larus parasiticus* of Linnæus; and first discriminated by Dr. Richardson, whose name it bears. "It is a more robust and powerful bird than *Lestris parasiticus*; and the upper surface of its plumage is darker and more uniform in colour. Two finely-executed figures, illustrative of varieties of plumage dependent on age, are presented in this plate.

On the same plate is an admirably-executed figure of the Parasitic Skua, *Lestris parasiticus*,—Stercoraire parasite ou labbe, *Fr.*—Stercorario di-coda-longa, *It.*—Struntmeve, *G.*—adverted to in the preceding paragraph. It is the Arctic-bird of Edwards; *Larus parasiticus* of Linnæus; and *Cataractes parasitica* of subsequent naturalists. Its claim to the title of a British bird is very questionable.

Bearded Tit, or Reed-bird, *Calamophilus biarmicus*,—Mésange moustache, *Fr.*—Bartmeise, *G.*—Our objections to the removal of this beautiful and interesting little bird from the genus *Parus*, with which it has been so long and naturally associated, are grounded on the principle which we have, on a former occasion, developed. The differences which it exhibits are not, in our view, sufficient to constitute a good generic character.* The two figures, male and female, here presented, are among the most exquisitely drawn and coloured in the whole work.

Two species, formerly belonging to the *Anas* genus, now transferred, by Leach, to *Somateria*. The *former* plate represents the King Duck, *S. spectabilis*,—Canard à-tête-grise, *Fr.*; the *latter*, the Eider Duck, *S. mollissima*,—Canard eider, *Fr.*—Oca Settentrionale, *It.*—Eiterente, Eidergans, *G.*—The trachea of the male bird, of equal diameter in its whole length, is composed of hard, entire, cylindrical rings, connected by membranes. The inferior larynx is dilated anteriorly, and forms on the left side a bony protuberance, hemispherical and slightly elevated. The triangular base of the fundus of the glottis is very prominent. Sabine describes the trachea of the King Eider as exhibiting a similar structure. The following are the characters of the new genus, as traced by Gould: Beak swollen at the base, elevated, extending up the forehead, and divided by a triangular projection of feathers; towards the tip, narrow and blunt. Nostrils small, placed in the middle of the beak. The two figures, male and female, respectively exhibited in these plates, are drawn and coloured with inimitable correctness, grace, and splendour.

White-winged Crossbill, *Loxia leucoptera*,—*Curvirostra leucoptera* of Wilson. See *American Ornithology*, pl. 31, p. 42; and *Northern Zoology*, Vol. II., p. 363. Of this beautiful bird, one specimen only has yet been taken in the British islands, and probably in Europe: since it is not mentioned by Temminck. The colouring of the male bird, by Gould, is exceedingly fine.

Ruffed Bustard, *Otis Houbara*,—Outarde Houbara, *Fr.*—Kragentrappe, *G.*—The genus *Otis* comprehends only three European species,—*tarda*, *tetrax*, and the beautiful subject of the present most striking and superb plate; which, although occasionally met with in Spain and South-Europe, is unquestionably a native of North-Africa and Arabia. Persons who idly prate about the unrivalled superiority of Audubon's great work, will do well to gaze on this noble production of Mr. Gould's pencil, and confess their error.

The two next plates exhibit the only two European species of the genus

* In order to justify this opinion, we transcribe the generic characters of *Calamophilus*, as traced by Mr. Gould: "*Beak* nearly as in the genus *Parus*; but the upper *mandible* at the tip somewhat curved. *Tail* elongated, wedge-shaped. *Legs* very slender."

Phalaropus, in two figures each, illustrative of the peculiarities of the Summer- and Winter-plumage in the *first*, or Grey Phalarope, *Phalaropus platyrhynchus*, —Phalarope platyrhinque, *Fr.*; and of its sexual diversities in the *second*, or Red-necked Phalarope, *Ph. Hyperboreus*,—Ph. Hyperboré, *Fr.*—Gemeiner und Rothalsiger Wassertretter, in its young and adult age, of the *Germans*. The *former* is *Ph. lobatus* of Fleming; and the *latter* has been transferred, by Cuvier, to a new genus, under the name of *Lobipes Hyperborea*. The separation of birds so nearly allied in structure and in habits as the two European Phalaropes, appears to us highly objectionable: and yet more so the designation *Lobipes*, by which Cuvier has sought to distinguish the newly-constituted genus. Is it right to select, as a ground of nomenclature for a new genus, a character not peculiar to the animal taken for the typical species; but exhibited by other species of the genus from which such animal has been separated? And is not the Grey Phalarope a *lobe-footed* bird; and has it not, on that very account, received, from Fleming, the specific designation *lobatus*? Differences in the figure of the bill are the pretext advanced, by Cuvier, as justifying the proposed innovation. Why then not compound from the Greek or Latin, if a new genus there must needs be, a generic title for it, expressive of such peculiarity?

Black Tern, *Sterna nigra*,—Hirondelle-de-mer epouvantail, *Fr.*—Schwarz-graue, Schwarze, und Schwarzkehlige, Meerschwalbe, *G.*—has unluckily fallen into the hands of the reformers, and shared the fate of divers of its predecessors. It is now *Viralva nigra* of Leach,—the black Viralv (!) of the Russell of ornithological reform.* We subjoin a sketch of the general characters of *Viralva*: Beak shorter than head, subulated, nearly straight, slightly compressed; tip a little inclined; upper mandible nearly straight. Nostrils oblong, basal. Wings long, tail slightly forked. Feet four-toed, slender: hind toe minute. Claws small. The "almost-square" figure of the tail appears, after all, to constitute the principal character of this newly-constructed, but crazy and ephemeral, genus.

Yellow-headed Wagtail, *Motacilla citreola*,—Bergeronette citrine, *Fr.*,—an *indigène* of Western-Asia, occasionally visiting the adjacent districts of Europe, exhibits the prolonged hind-toe; and should consequently belong to the new genus *Budytes*. The following is the marrow of Gould's specific description of this rare and elegant bird: In size, inferior to *M. flava* and *M. neglecta*: distinguished, in its Spring plumage, by the fine citron yellow of the vertex, cheeks, and whole under surface. A crescent-shaped black band across the occiput. Under plumage dark-ash colour, slightly tinged with grey. Middle and greater wing-coverts edged with white. Middle tail-feathers black: two external ones,

* See *Analyst*, Vol. III., p. 211.

on each side, white. The head and inferior parts of the female, according to Gould's figure, are of a dusky greenish-yellow: occiput dusky, and apparently destitute of the black crescent. Food and nidification unknown.

Little Auk, *Mergulus* (formerly *Alca*) *alle*,—*Uria alle* of Temminck,—*Mergulus melanoleucos* of Ray,—Guillemot nain, *Fr.*—Uria minore, *It.*—der Kleine Alk, *G.*—Two figures illustrative of the Summer- and Winter-plumage of the bird, delineated with great truth and spirit.

The genus *Procellaria*, as constituted by Linnæus, included all the sea-birds furnished with tubular nostrils. Subsequently, it has been parcelled out by naturalists into several genera; three of which, *Procellaria*, *Puffinus*, and *Thalassidroma*, contain European species. The concluding plate of Mr. Gould's *Fourth Part* exhibits a nobly-executed figure of the typical species of the *first*,—the Fulmar Petrel, *Pr. Glacialis*—Pétrel fulmar, *Fr.*—The following are the generic characters of *Procellaria*, as now restricted: Beak thick, dilated at the tip, sulcated: upper mandible hooked; lower straight and slightly truncated. Nostrils united in a single tube. Legs moderate: a claw in place of the hind-toe.

The cautious and "tardigrade" Temminck, we may in conclusion observe, distributed the species of the Linnæan genus *Procellaria* into three sections or sub-genera, respectively designated *Proper*, *Puffin*, and *Swallow Petrel*, and comprehending the following European species: 1. *Pr. Glacialis;* 2. *Pr. puffinus*, *Pr. Anglorum*, and *Pr. obscura;* 3. *Pr. pelagica*, and *Pr. Leachii*. And it is, in our opinion, questionable whether the Duchman's, after all, be not the best, as it is evidently the most natural, arrangement. The Fulmar Petrel constitutes the type of the new genus *Fulmarus*, of "Mr. Mihi Stephens."*

Paradise-Street, Birmingham,
May 30, 1836.

* Part IV.

Plates.		*Figures.*		*Genera.*	*Species.*
6	one	6	adult male.	6	6
		2	diversities of age		2 British, 15
		9	——— sex	10	9
13	two	26	1 ——— season.		1
		1	——— species.		2 Exotic, 6
1	three	3	——— age and season	1	1
20		35		17	21

From a retrospect of our analysis of the first four Parts of Mr. Gould's splendid work, it will be seen that eighty-seven species of birds only have yet been delineated, instead of one hundred—twenty-five in each Part—as we were led, from the prospectus, to anticipate. From the commencement, we were of opinion that the *Birds of Europe* could not be completed in less than

HABITS OF THE FITCHET WEASEL, OR POLECAT.*

By a Student of Nature.

In a late paper I had occasion to make allusions (Vol. IV., p. 458) to a tame Polecat; and as the Polecat is an animal not very frequently to be met with in a state of domestication, I am inclined to think some account of its habits may not be wholly destitute of interest.

This animal is indeed seldom seen in confinement at all, far less tame, being but rarely an inhabitant of public menageries, or zoological gardens: and its fœtid odour rendering it no very desirable addition to the collection of an individual. I have seen but few of these animals myself, but have been fortunate enough to have had two in my possession, one of which was killed by a young Boar-hound chained too near him—the other, having been caught young, I found no difficulty in reducing to perfect domestication, in which state he was exceedingly amusing and affectionate. It was during my residence in Edinburgh that I got this creature, which is more abundant, and grows to a larger size in Scotland, than in England or Ireland. The house in which my family resided, was situated at the outskirts of the town, and in rather a thinly-inhabited neighbourhood: and as it was regarded a fashionable part of Edinburgh, there were few around us that were not suitable acquaintances; but even had it been otherwise, few of our neighbours would have remained long in ignorance of my predilections in the way of Natural History, especially the boys, who were always ready to fetch me any animal of a rare or uncommon description they had met with, well knowing they might depend on receiving a certain and fully-adequate remuneration, not to be looked for from any except enthusiasts such as I was considered. I was well aware that my devotion to Zoology, especially as exemplified by my insatiable desire of adding to my stock of living specimens, as well as the surprising degree of tameness to which I reduced them, besides the numerous canine attendants which invariably followed me in my walks, alike contributed to undermine whatever good opinion my neighbours might have entertained of my sanity; and I have often fancied I detected many a sly look, and perhaps even a lurking smile on the faces of some of my young collectors, as they presented me with a Rat, piebald Mouse, Weasel, Bat, or some such thing; but I

twenty Parts. Mr. Gould has, at length, publicly confirmed the accuracy of our calculation. The last and twentieth Part will appear, we presume, in April, 1837.—S. P.——[The 22nd and concluding Part was published Aug. 1, 1837, as announced in our Vol. II., p. 340.—Ed. *Nat.*]

* From the *Dublin Medical Press* of June 12, 1839.

was content, not merely to overlook the childish smile of these little boys, but even to put up with the open expressions of wonder and contemptuous astonishment of others, whose years or connection with me precluded fitting resentment. I heeded them not, satisfied within my own mind, that I was pursuing the only path by which I might hope eventually to arrive at a competent knowledge of the Zoology of the British islands. Many, also, who read my papers, may greet them with a smile, and think I might have been better employed. Perhaps so: but some, I am convinced, will recognise the productions of one whose tastes are congenial with their own, and these perhaps will honour my humble papers with indulgence, if not approval; or even should I meet with nothing but derision, the laugh, though levelled only at me, will fall on many deservedly great and exalted individuals, men ennobled by the superiority of their *minds*, not of their *purses*, with whom I should be proud of being associated even in ridicule.

One Sunday morning, a party of young tradespeople, grocers'-shopmen, tailors'-assistants, &c., set off for the romantic vale of Roslin, and Hawthornden, about seven miles from town. Having reached the place of their destination, they were reclining by the side of the murmuring Esk, a small but exquisitely-beautiful river, which wound its silvery and tortuous way past their feet. I fancy the young people's imaginations were dwelling on far other topics than the beauties of the surrounding scenery—they saw not the perpendicular and craggy banks rising at either side of the river in front and at their backs, rearing their beetling summits to an almost fearful height. They saw not "Wight Wallace's" cave, 'midst the inaccessible crags before them, nor the gigantic Ash which appeared, growing, as it were, in the solid stone, as a shelter and further concealment for the entrance of the Scottish chiefs' place of refuge: but one thing they did see—they saw that the water rippling along, about four feet below them, would, if it could be got at, make *capital grog*, with a bottle of good "Islay" they had brought with them; and, accordingly, they rose to their feet and sauntered down the river, in search of a more sloping part of the bank. They soon found one, where the roots of an old Elm-tree aided in forming a sort of step to the water's edge: but as one of the party was taking advantage of this, to fill his flask with the pure water from a hole beneath the tree, almost at their very feet, started forth a Polecat. The lads did not very well know what it was, but human nature delights in any kind of hunting or destruction of animal life—off went the party in pursuit, and forth started another and smaller Polecat—the latter was stopped in his career by the blow of a stone which broke his left fore leg—and the other turning to bay, was killed with sticks; the smaller animal they secured and brought home with a reference to selling it to me. Accordingly, the following morning, they left him with me for the moderate sum of ten shillings.

The colour of this animal was a very dark brown, with shades of a yellowish

tinge appearing here and there, especially about the sides ; the belly was of a bright tawny ; throat, and between fore and hind legs, also the back of both fore and hind legs, with the feet, black ; the tail also black ; the extremity of ears whitish, somewhat as if they had been cut, the tips being unfurnished with hair, the muzzle surrounded by a space of a dingy yellow colour. Its general appearance was that of a large brown Ferret, but rather longer in the nose, larger and more pointed ears, somewhat longer in the legs, and altogether a stronger and fiercer-looking animal. This creature, when I got him, was about fifteen inches in length, and the tail four or five: the tail is commonly nearly one-third as long as the body. After I had him a year or so, however, he attained the length of twenty inches, and his hair became longer and more like the fur of the Sable. This little animal was very fierce, and on my first attempt to lay hold of him, seized me between the thumb and forefinger of my hand, and held firmly, despite my blows, until a hot wire was presented to the extremity of his nose. Perceiving, from this, that my little gentleman required prompt and rather severe measures to be taken with him, I put round his neck a small leather collar, to which I attached a light chain, and having thus well secured him, I left him to his own reflections for the next two days, during which I allowed him to observe a rigid fast. On the expiration of this period, I found him less violent, but still very sulky. Sulky or not, however, I had gained one end, he was very hungry, and willing to eat out of my hand already. I was, nevertheless, in danger of being bitten, for he took each morsel with such a sudden snap, that I was in momentary apprehension of my fingers becoming included in the mouthful, and badly as I used to think of the bite of a Rat, this animal's bite is fifty times more severe. A Rat punishes with two incisor teeth only, this animal with four canine teeth, besides the incisors, and the canine teeth being in the middle of the lever, he bites with far more force than the Rat can, whose teeth are at its very extremity. During the first three or four months the smell of this creature was very offensive, and would adhere to the hands or clothes of any one who handled or caressed him: his cage, although constantly cleaned out, stunk horribly, and he had many narrow escapes of being voted a nuisance by my unzoological parents! and expelled the premises. According, however, as he became familiarsed, this disagreeable quality became less remarkable ; and at last, when he grew so tame as to render confinement no longer necessary, it nearly altogether left him. While in a good humour it required a very nice sense of smelling to detect his presence in a room, were he in a place of concealment ; but if he met with any bad treatment, or became at all provoked, then, indeed, he not only gave *strong* notice of his presence, but left a scent behind him which *perfumed* the apartment for at least an hour after his removal. This fœtid odour depends upon an unctuous secretion which is formed in an almost imperceptible

double bag, just below the anus, but I am of opinion that an unpleasant exudation proceeds also from the animal through the medium of the skin; hence the difficulty furriers have to encounter before they can render the fur of this animal, which would otherwise be valuable, free of unpleasant smell. My reason for thinking so is this:—With the assistance of another person, I removed, as well as I could, the odoriferous glands I have mentioned, and even put the poor animal to considerable additional pain by using a caustic solution, after extirpation with the knife; notwithstanding which, on irritation, the stench would be still perceptible, although, certainly, not to the same extent as formerly. Perhaps had I used the knife more freely, I might have been perfectly successful; but I was apprehensive of unfitting the poor creature for an experiment I had in further contemplation, and was unwilling, besides, to put him to what might ultimately prove superfluous and ineffectual suffering. I had several Ferrets, and wished now to produce a cross breed with the Polecat, which I have heard is occasionally resorted to by warreners to improve their stock. The Polecat, however, is usually so fierce an animal and so difficult to reclaim, that I have often suspected they used the Marten (*M. foina*), or some such animal, more frequently for this purpose, than the former, whom he closely resembles in general appearance. After repeated, and often very mortifying failures, I succeeded in procuring the mixed breed, but most unfortunately failed in rearing the young ones, in consequence, I am led to suppose, of the unhealthiness of their female parent, who died soon after giving them birth.

A curious adventure happened to me in connection with this Polecat. A friend (a great lover of animals) expressed much anxiety to see him, and I accordingly conveyed "Jemmy" (that was the name I bestowed upon him) to his house, in my pocket; and, on entering, set him down at once upon the carpet. This was rather an incautious step, for I had not perceived a Cat sleeping on the hearth-rug, upon whom "Jemmy" sprung, and, seizing Puss behind the ear, would shortly have put a period to her further mousing, had we not (with much difficulty) forced him to quit his hold. I dare say, had Puss been prepared for his attack, he would hardly have mastered her so quickly, for he was still young and of no great size; but a full-grown Polecat would, I think, be able to destroy any Cat.

A friend of mine had a little terrier, about ten pounds weight, considered an excellent Rat-killer, and he repeatedly challenged me a combat between this Dog and "Jemmy." Not wishing to risk the life of the latter, which I of course regarded as infinitely the more valuable animal of the two, I, for a long time, declined the challenge; but after the affair of the Cat, I thought I might safely consent to my sporting friend's request. The result was, "Jemmy's" fixing upon the poor terrier's under jaw, and there hanging, shaking with great fury for some

minutes, when the Dog howled, lowered his tail, endeavoured, but fruitlessly, to remove his enemy with his paws, and, on the Polecat being taken off, fairly (or rather, foully) took to his heels; nor could any encouragement of his master's induce the recreant to return to the charge—"Jemmy" all the while sitting calmly on my knee, licking his lips, apparently regarding it quite as a matter of indifference whether or not he should be called upon to resume the contest. When engaged in fighting, especially if the prey be attempted to be removed, the cry of the Polecat resembles that peculiar sound that follows the spit of a Cat, somewhat like the word *ha*——*ah;* the *ha* being lengthened out and terminating in rather an abrupt *ah!* Another cry expresses pleasure, and resembles that of the Ferret, uttered by both sexes on particularly pleasurable occasions, and I have observed that the same cry or murmur which expresses pleasure is employed also in a more vehement and hurried manner by the animal when suffering a slight degree of pain; if the pain, however, become severe, the murmur will be broken into successive and piercing screams.

A miniature-painter with whom I was acquainted, had a prodigious male Ferret, very nearly two feet long—without exception the largest I ever saw, and at that time much superior in size and apparent strength to my Polecat, which, as I have already stated, was not nearly full-grown. We one day introduced these animals to one another—both were equally tame, and neither appeared in the least surprised at the meeting. "Jemmy" probably mistook him for one of his friends, my own Ferrets; and I presume my friend's animal, in like manner, took "Jemmy" for one of his own kind. A few moments passed in smelling and examining one another, when, suddenly, a strong smell from "Jemmy" informed me that he meditated mischief. The hair on the tails of both animals became rough like bottle-brushes, or like a Cat's tail when irritated. They moved their heads rapidly in different directions, confronting one another—the Ferret was silent, but the Polecat uttered frequent *ha*——*ah's;* each eagerly sought to take hold of his opponent, without exposing himself to a similar injury. At length their fury rose to its height—the animals closed—the Ferret's strength for an instant appeared to give him the victory—for a moment they rolled over and over on the carpet; but when again they rose, "Jemmy" was uppermost, holding his enemy by the shoulder, and, to employ an expression well-understood by Dog-fanciers, "nibbling" and shaking desperately. As I hope most of my readers are unacquainted with the mysteries of a Dog-fight, I may be permitted to explain that "nibbling" is a word used to express the *repeated*, and *repeated*, and *repeated* bite—each bite comprising a larger mouthful of the enemy's throat, leg, or shoulder, within the Dog's jaws. This method of fighting is particularly to be observed with the blood-hound. I have often seen it the case, also, with the greyhound before the Hare can be taken from him. The bull-Dog is a great

adopter of this practice, but the terrier in general abjures it, preferring a constant changing of his hold, which is certainly less fatal, though eventually a far more severe mode of punishing for the time. While poor "Jemmy" was undermost, my friend cared little about the result, but now it was quite a different affair; accordingly, catching both animals up in his hands, and rushing to the kitchen, he plunged the combatants over head and ears into a bucket of water. Nothing else would have caused these animals to have quitted their holds; and I may take this opportunity of informing such as keep Ferrets, that the latter animal possesses the same dread of water; and if two should unfortunately quarrel, a sudden immersion is the surest way of separating them. If, however, this takes place while you are in the middle of a field, or dry sandy Rabbit-warren, where, perhaps, water cannot be very readily come at, a sudden and violent puff of breath into the faces of the combatants will commonly produce the same result; but in any case the animals must be separated and removed immediately on their letting go, otherwise, on recovering from their surprise, they will instantly return to the conflict, which would, if uninterrupted, terminate in the death of one or both.

"Jemmy's" food consisted of butcher's meat in a raw state, or birds, which I occasionally shot for their skins, and afterwards threw him; milk he delighted in; Rats were a favourite repast, and it is remarkable that he always ate the head first, and left the rest, if another Rat still remained whose head he had not as yet devoured. So much for the talk of a Rat's head being poisonous—an idea that has so far got possession of many as to make them deprive their Cat or Dog of any Rat it may happen to catch, lest it should eat the head! It is also a common idea, that a Cat will reject the head of her own accord, unless very hungry. These notions are both as erroneous as that of the spittle of the Weasel (*M. vulgaris*) being poisonous—a superstition which has given rise to many idle tales, some of which I shall relate when I come to speak of that animal.

Having heard it asserted that the Polecat will attack Bee-hives for the honey they contain, I brought him to gardens where they were kept, and was disappointed, for he took no notice of them; however, when honey has been presented to him on the finger, he has appeared very fond of it. He delighted in eggs, and would break and eat them with great dexterity. He generally broke them at the smaller end, biting the sides of the shell down as he proceeded, and would first lap the interior with his tongue, and then lick it all round until he left the shell as clean as if it never had any contents. If (as I have tried) an apparently perfect shell, emptied by careful blowing, were presented to him, he would take it, and eagerly crack it, but on discovering his mistake, would evince his rage and disappointment by smashing the empty shell in pieces with his teeth and paws. We had a large Cat in the house with whom "Jemmy" was on no very good

terms, but Puss's size and strength kept him at a respectful distance; once, and once only, did he approach her, and then a blow from her (or his rather, for it was a male Cat) paw sent him sprawling a couple of feet; and even when he arrived at maturity, he remembered this defeat, and never again attacked the Cat, who being in his turn unwilling to attack "Jemmy," the two animals lived in a very peaceable manner together; and it was amusing to observe their mutual caution and respect for each other. For instance, if (one going out of a room and the other coming in) they chanced to meet in a door-way, "Jemmy" would pause, eye Puss, and *ha—ha—ah, pthah——ah.* Puss would reply, drawing back his ears, retreating, the hair on his tail distended, and his whiskers and nostrils moving in a manner indicative of great anxiety. Puss would then quietly draw back to one side, and the other would *limp* past, for the injury he received at the time of his capture left him lame for life. I am not disposed to admit, however, that "Jemmy" was to blame in not being friends with Puss, for on his first approach to him, as you will perceive, at their first meeting, the Cat "floored" him with his ready paw, before he had time to discover whether the stranger's advances were friendly or the contrary. Now, "Jemmy" was by no means unsocial in his manners; for, excepting his natural prey, such as Rats and the like, he seldom (at least after he became fully tame) meddled with any thing which did not meddle with him; his disposition was most affectionate to human beings, especially to myself and others whom he knew. With such persons he would be extremely fond of associating, and would testify his affection by licking the face or fingers: this latter mark of love, however, was bestowed on no one but myself. If "Jemmy" were at large in the parlour, or other room, and I quitted it, as soon as he became aware of my absence, he would search the room carefully for me, smelling and examining every other person in it, and when he discovered that such search was in vain, he would attempt to open the door with his claws and teeth, in order to seek me elsewhere. If I chirped for him and patted my knee while he was in the room with me, he would instantly jump upon my lap and settle himself to sleep there. He was once nearly killed by a Coati-mondi. This animal had been given me by Captain Thomas Brown, author of several able and interesting works on Natural History, and a kind promoter and assistant of my zoological studies. It was called "Jacob," was very tame, but passionate: it appeared to have imbibed a strong antipathy to every animal smaller than itself: the Cats were forced to fly the house; it killed a Ferret for me, and nearly destroyed poor "Jemmy." This Coati-mondi had a strange fondness for getting under the kitchen-grate and rummaging among the ashes; and I discovered that his object was to search out any eggshells that might have been thrown there, for he was, if possible, still fonder of eggs than even "Jemmy." He was thus engaged one day, and his long tail was waving backwards and forwards behind

him—"Jemmy" just then coming into the kitchen, seeing the long tail with its raw and bloody extremity (for Coati-mondis have a shocking propensity *for eating their own tails!*), conceived, I suppose, that he might eat a bit of it too, as its owner himself had set the example. Accordingly, in his simplicity, he seized the tail and prepared for a meal—"Jacob", roused I imagine more by feeling his body pulled through the medium of his tail, than from any pain he felt (for I am of opinion that the extremity of the Coati-mondi's tail is void, or nearly so, of sensation), turned sharply round on "Jemmy," and rushing suddenly upon him, caught him by the back with his teeth, driving his sharp claws into his side: nor was "Jemmy" idle—had he been so, I should have been too late to have saved him; fortunately he contrived to turn his head sufficiently to pin his foe by the extremity of his long projecting snout! Coati showed game, and bore his punishment like a hero: so, too, did "Jemmy," and had I not been called by some of the servants to the scene of action, I have no doubt the latter would have furnished me with the opportunity for a dissection, in his own proper person, for "Jacob" bit cruelly. He would whip the head off a stray hen or chicken in a moment, and was besides nearly as large as a small cur Fox. After this "Jacob" was kept tied up.*—A small Baboon which I kept tame, took a great fancy to my Polecat, and would frequently nurse him in his arms, fondling him in his bosom as a woman would a child. "Jemmy" disliked this, and after a few growls and *ha——ahs!* would bite: still I never knew "Jack" so provoked, even when his hands were streaming with blood, as to inflict any injury in retaliation. Although said, naturally, to be of a fierce and unsociable temper, the specimen in my possession appeared to be fond of company, and to dislike above all things solitary confinement.

For a long time after "Jemmy" became tame, I used to shut him up in his cage (the same, alas! that my poor Squirrel had once occupied!) both at night and during the day; if I intended going out myself, I took this precaution lest he might wander too far from home, and perhaps meet with some accident, or, as might happen, find some companion of his own species, and, probably, never return to me. One morning, on going as usual to feed my animals, which were kept in cages (most of them, at least), in the area attached to the house, I found "Jemmy's" cage broken open, and himself missing. I searched in every hole and corner where he could possibly have secreted himself, but for a long time to no purpose: at length it struck me he might have entered the kennel of a large Dog, bred between Boar-hound and British blood-hound (the Boar-hound, the sire, was the well-known Dog "Hector," the property of his Grace the Duke of

* In another paper I shall give you an account of Coati-mondis in general, and shall also inform you how this individual conducted himself in captivity.

Buccleuch), and I was quite certain, that in such case, all I could expect to find was my lost pet's body, and that in no very perfect or available condition, for this Dog was peculiarly remarkable for his inveterate hatred to all sorts and descriptions of vermin; he had, some time before I got "Jemmy," killed a Polecat on the Pentland Hills, was notorious as a Rat-killer, had killed two or three Dogs, and was, certainly, the last animal to whose tender mercies I should have wished "Jemmy" to have entrusted himself. The Dog-kennel was formed of stone, and on the floor was laid a large board composed of several planks laid together, and held in their places by cross-pieces: after searching, therefore, every corner, I raised this board, and underneath found my poor Polecat—no! he was not dead as I at first supposed, nor, indeed, in any way injured. I took him up in my hand, and underneath found a large Rat; he had caught it, I suppose, in one of the cellars, and had brought it there to devour it at his leisure. How he had contrived to get into the Dog's good graces, I cannot imagine; perhaps he had approached "Lynx" with such confidence as to take him by surprise, and thus induce the Dog to let him pass by unmolested; for I recollected that, once before, "Lynx," although passionately fond of killing Cats, refused to injure one that, when thrown to him, purred, rubbed against his legs, and appeared to court his acquaintance, and deprecate his rage. Be the cause what it may, however, from that hour the two were sworn friends. I have seen them hunting together for Rats; "Jemmy" would enter the hole (when it was large enough), "Lynx" would stand outside and pin the Rats as they came out, and by-and-by, when "Jemmy" was tired, he would also come out, sometimes dragging forth a Rat that he had secured within the hole, sometimes not; and when empty-handed he would, without scruple, regale himself on one of those which "Lynx" had killed; the latter sitting by all the time and looking on with much complacency. After this, "Jemmy" always slept with "Lynx," and I could now leave him at large with a full conviction that the noble Dog would take care of him, which, indeed, he always did; and I have seen him more than once give a strange Dog a good shaking for *merely approaching* his friend: this was, perhaps, a *precautionary drubbing*, judging from his own feelings, of the disposition of his fellow Dogs, to tear and worry all before them.

"Jemmy" was an excellent hand at hunting Rabbits, and never required a muzzle: he would go through every hole and burrow; and if he seized a Rabbit, would drag him forth to the light before despatching him. If he made such delay in a hole as to make me apprehensive he was playing me false, and lying on a Rabbit, I had only to whistle, chirp, &c., at the hole's mouth, or go from hole to hole calling "Jemmy, Jemmy," when, as soon as he heard me, he would certainly come out. Some naturalists have asserted that the Polecat will take the water after fish—catch Eels, for instance! It may be so; but I can affirm, that

"Jemmy" was by no means particularly fond of fish; he would eat it, it is true, but preferred meat or eggs; and I have often presented to him small fish in a basin of water, but he would take no notice of them; there was a river also running near us, whither I often took him to search for Rats with "Lynx," for, in consequence of his dark colour, I feared to hunt with any other Dog, as a terrier or other strange Dog might, by mistake, however much accustomed to Ferrets, snap up "Jemmy" on his suddenly appearing from the mouth of a hole, supposing him to be a Rat. "Jemmy" shared the fate of many other animals of which my little menagery was composed. He was tolerated for a long time in the house; longer, indeed, than even my Dogs, but I was finally compelled to part with him, and consign this gentle and amusing creature to the care of strangers. I know not what became of him.

COMPARATIVE PHRENOLOGY.

Birds.

By J. L. Levison.

(Continued from Vol. IV., p. 430.)

Although it is true that the general type of the brains of rapacious birds is somewhat similar, the carnivorous propensity (Destructiveness) being indicated in all feeders on flesh by the breadth of the head, whether they kill for themselves, or devour any dead decomposing carcase, which they scent with the *gusto* of lovers of game; yet there is a difference in the forms of the skull of each genus, and still more diversity in those of each species. There is, for example, a family likeness in the different genera of Owls, but very striking difference in the configuration of the different species. The diversities of form become yet more apparent when we compare together different genera, as in the case of the Owl and the Hawk. By way of illustrating this position, the Barn Owl and the Sparrow Hawk may be selected. They are both broad from ear to ear, whilst the upper and anterior portions of their heads differ very much; but both are sanguinary in their habits.

The Sparrow Hawk's skull, when viewed from behind, shows large Destructiveness, Secretiveness, Cautiousness, and Firmness; and its habits result from such a combination of faculties. How noiseless are all its motions, as it pursues the helpless Sparrow—how gently it skims along, and how beautiful are its undulations—the very air seems undisturbed and unruffled by its floating changes of place! It moves like a bodyless spirit, and appears so circumspect, yet so

determined, that its victim shall not escape, these very motions being still marked with something of dogged firmness of purpose. And when its prey is considered sure, how unerring and deadly is its aim, and how savagely does it pounce and seize the trembling, panting, unfortunate Sparrow, and then instantaneously gratify its sanguinary propensity! The Sparrow Hawk reminds one of a secret assassin, turning and winding with a breathless purpose, and although determined to sacrifice the victim of his hatred, or of his ire, he in either instance waits an opportune moment, and strikes the unconscious individual; nay often repeating the stab in order to gratify a malignant and savage disposition:

Comparing the skull of the Sparrow Hawk with that of the Barn Owl, we perceive that the latter does not present a fullness from the base (laterally) to the vertex, but on the contrary is broader atthe base, on comparison of the sizes of the skulls, and goes off gradually decreasing upwards, like a pyramid flattened on both its sides, and also on the surface; and of all the Owls this one is the most courageous (Destructiveness and Combativeness being large); it dispatches its victims with great celerity, its feeding-hours being at twilight, morning, and evening. The upper portion of the parietal bones being narrow across, indicates a comparative deficiency of Cautiousness, which is also well in harmony with its known habits, it being less timid than other species of Owl, building in the flues of gentlemen's houses. It should manifest great attachment, if we may judge from the breadth of the back of the head.

I would also now call attention to three birds of very different mental manifestations, although nearly related as far as regards family connection,—the Magpie, the Crow, and the Rook. The head of the Magpie indicates a remarkable difference of form from either of the others, the middle portion of the lateral region of the brain, corresponding in relative position in the human cranium to Secretiveness (being between Destructiveness and Cautiousness), is largely developed in this bird. This part of the skull actually projects, so as to exhibit a "bump"! The habits of the Magpie are well accounted for, and explained by, its cerebral organization. It overcomes its victims or its enemies by its superior cunning, more than from any great endowment of courage. The Magpie is proverbial for its sly and thievish propensities. Even when in captivity, it has been known to conceal its food in its cage, and pry about as if to watch the opportunity of gratifying its hunger and Secretiveness at the same time. Thus it may be seen taking, in a deceitful, cheating kind of way, portions of its meal, particularly watching in the most sly manner that it is not observed. We often meet with Magpie-men, who never do any thing in a straight-forward manner; they are always suspicious of the motives of others, and continually trying to

over-reach and deceive in every transaction; the illustrious Burns ably describes the operation of this propensity, and says—

"Conceal yoursel as weel's ye can,
Frae critical dissection,
But keek thro' ev'ry other man
Wi' sharpened sly inspection."

If we contemplate actions performed under the influence of strong Secretiveness, whether in Man, in animals or in birds, we shall find them all characterized by cunning and slyness. The natural language of the faculty is similar, the position of the head sideways, or the peculiar position of the eyes indicating a strong desire to see, and if possible avoid being seen: then the stealthy gait, the step slow and noiseless, and a gravity which the superficial mistake for seriousness of manner and deep reflection; but the true reading is deceit, cunning, and baseness. In the case of the Magpie, it is a curious fact that it evidently delights in robbery and deception, and it betrays a great sense of pleasure when it has the power of concealing anything, even if useless to itself.

In order to show that these statements are neither fanciful nor meretricious, but founded in nature, let a comparison be made between the skull of the Magpie and the skull of the Carrion Crow, and the contrast will be most striking. Instead of Secretiveness being large in the latter, it will immediately be seen that Destructiveness and Cautiousness are both large, and also Adhesiveness, the Crow's head being broad and low, with great breadth behind, and yet long from the back to the front. As the habits of the Carrion Crow are well known, I need only remark, that he builds his nest on very high trees, and fights for his "lady love" with a most chivalrous devotedness, not caring to live if he has a rival in her affections.

The very circumstance that Crows pair, and their whole domestic arrangements, indicate strong natural attachment, independent of the amative instinct.

Again, if we compare the skull of the Carrion Crow with that of the Rook, there are certain points of resemblance, as well as in their habits and predilections; but the latter has more Self-esteem, is more stately and overbearing, and may therefore show more resistance to a common enemy.

Finally, we may examine skulls of the same genus, but of different species, and find some modification of form, indicative of their different habits. Thus the skulls of the Common Buzzard and the Kite have many points of resemblance, but the eye soon discovers the modifications of which we have been speaking.

In my next I will give some account of the Warblers, and the harmony between their habits and cerebral organization.

(To be continued.)

ON THE HABITS AND PECULIARITIES OF BRITISH PLANTS, AND ON THE DERIVATIONS OF THEIR LATIN NAMES.

By T. B. Hall.

(Continued from p. 31.)

Clinopodium.—Κλίνοποδιον; from κλινη, a bed, and πους, a foot; the flowers growing in whorls, resembling the ancient turned feet of bedsteads.

Cnicus.—Named from κνιζω, to prick or wound.

Cnicus acaulis, Dwarf Thistle.—It kills all plants which grow beneath it, whence it is very injurious in meadows. However entertaining to the eye of the poet, when

> "Wide o'er the thistly lawn as swells the breeze,
> A whitening shower of vegetable down
> Amusive floats,"

to the agriculturist this plant ever appears one of the most pernicious of weeds, which ought not to be tolerated even on the borders of fields, or waste places. When cultivated in the fertile soil of a garden, it acquires a stem three or four inches in height, bearing three or four flowers. The most unwelcome weeds may be proved not only to be essential to stimulate the requisite exertion of Man, but, in a certain degree, to be indirectly conducive even to his sustenance, by supplying food to numerous tribes of insects, which again tend to the support of other animals, as birds, &c., on which he partially depends.

Cnicus eriophorus, Woolly-headed Thistle, Friar's-crown.—According to Miller, one or two of these plants may be allowed a place in some abject part of the garden for its singularity. Upon the disc of this, and other late-flowering Thistles, may frequently be observed, with vital energies all but extinct, the torpid Humble Bee resolved to die upon his crimson couch.

Cnicus heterophyllus, Melancholy Thistle.—The Thistle has long been accounted the emblem of Scotland, as the Rose is symbolical of England, the Shamrock of Ireland. This species in particular has been deemed the badge of the house of Stuart, whose princes were wont to wear the Cluas-an-fheidh in their crown or bonnet. It is, indeed, as the token flower of resistance, far less illustrative of the national motto, "*Nemo me impune lacessit*," than several of its congeners.

Cnicus palustris, Marsh Thistle.—This and almost all the other species may be eaten, like Burdock, before the flowers are formed. Thistles in general can only be considered as noxious weeds, to be eradicated by all possible means; and for this purpose a new method has been lately suggested, which, though at first view, on a broad scale, apparently little less whimsical than that of catching birds by putting salt on their tails, has been thought worthy of attention by

practical agriculturists, as the following extracts from the *Farmer's Journal* evince:—"I have no doubt that salt may be of use in destroying Thistles. I have made several experiments, which have uniformly been attended with success. The most effectual way is to cut off or bruize the Thistle, and then put a small portion of salt on it; very few will survive the treatment." Other correspondents confirm the above report, slightly varying the mode of treatment.

Cochlearia.—From *cochlear*, a spoon; its root-leaves assuming the form of a spoon or shell.

Cochlearia armoracia, Horse-radish.—The root scraped (which has a quick pungent smell, and a penetrating acrid taste) is in common use at our tables as a condiment for fish, roast-beef, &c., and it is used for many other culinary purposes. The roots when dried lose much of their acrimony, becoming almost insipid, but they may be preserved, retaining their qualities, in sand and in a cool place, a considerable time. A spoonful of Horse-radish put into a pan of milk will preserve the milk sweet several days, either in the open air or in a cellar, while other milk will turn sour.

Cochlearia officinalis, Common Scurvy-grass.—Notwithstanding this is a native of the sea-coast, it is cultivated in gardens without any sensible alteration of its properties. It possesses a considerable degree of acrimony, which seems to reside in a very subtile essential oil. It may be eaten as a salad, and is much employed in the scorbutic disorders prevalent in Northern countries. Some authors have conjectured this to be the real *Herba Britannica* of PLINY, from the use of which the army of Cæsar derived great benefit in their sufferings from scurvy whilst in Germany.

Colchicum.—Κολχικον, from *Colchis*, a province of Asia, on the East side of the Euxine Sea, where it was said to grow abundantly.

Colchicum Autumnale, Meadow Saffron, Tuberoot, Naked-lady, or Upstart.—It flowers in September, produces its fruit in the following Spring, and ripens it in Summer. WITHERING observes, that the very great length of the styles may in some measure account for the delay in the ripening of the seeds. As this plant blossoms late in the year, and probably would not have time to ripen its seeds before the access of Winter, which would destroy them, Nature has so contrived its structure, that this important office may be performed at a depth in the earth, out of reach of the usual effects of frost, as seeds buried thus deep are known not to vegetate. A no less admirable provision is made to raise them above the surface when perfected, and to sow them at a proper season. PALEY adverts to these peculiar circumstances, as affording a striking instance of the compensatory system in the economy of Nature.

Comarum.—From Κομαρος, an ancient name, given by THEOPHRASTUS to an evergreen tree, and not now rightly understood.

Comarum palustre, Purple Marsh Cinque-foil, Purple Marshlocks, Cowberry.—The roots dye wool of a dirty red colour, and have astringency enough, with other plants of the same order, to tan leather. The Irish rub their milking-pails with it, to make the milk appear thicker and richer.

Conium.—Κωνειον of THEOPHRASTUS, from κωνος, a cone or top, whose whirling motion resembles the giddiness produced on the human constitution by the poisonous juice of this plant.

Conium maculatum, Hemlock.—The whole plant is poisonous, and many instances are recorded of its deleterious effects; but modern experience, according to some writers, has proved it to be less virulent than was formerly imagined. Our faithful GERARDE, concurring with DIOSCORIDES and PLINY, should not be slighted, when he denounces "Hemlocke" as "a very evill, dangerous, hurtfull, and poisonous herbe; insomuch, that whosoever taketh of it into his body dieth remedilesse." Wherefore, no doubt, a proper ingredient for the cauldron of the "weird sisters"—

> "For a charm of powerful trouble,
> Like a hell-broth,"——

was

> "Root of Hemlock, digged i' th' dark."

Convallaria.—From *convallis*, a valley, supposed to be so called from growing in vallies; though such a designation is far from peculiarly appropriate.

Convallaria majalis, Lily-of-the-valley, May-lily.—The Lily-of-the-valley claims our notice both as an ornamental and a medicinal plant. As an ornamental one, few are held in greater estimation; indeed few flowers can boast such delicacy with so much fragrance. When dried they have a narcotic scent; and if reduced to powder excite sneezing. A beautiful and durable green colour may be prepared from the leaves by the assistance of Lime. By forcing in pots, this truly elegant flower, with its double white and red varieties, may be rendered available to the drawing-room or boudoir, and thus will in the early Spring most agreeably

> "Its balmy essence breathe."

As the emblem of purity, it is peerless, even in the garland of lovely May; and

> "Then the sweet Lily-of-the-vale
> In woodland dells is found,
> While whisp'ring winds its sweets exhale,
> And waft its fragrance round."

Convallaria multiflora, Common Solomon's-seal.—The young shoots are eaten by the Turks as Asparagus, and the roots have been made into bread, as those of *C. polygonatum*. GERARDE gives an account of many curious particulars of the efficacy attributed to this plant in a more credulous age, for the "knitting-

together, soddering, or sealing" of broken bones, &c.; and even goeth so far as to assert that "the root of Solomon's-seale, stamped while it is green, and applied, taketh away in one night, or two at most, any bruse, blacke or blew spots gotten by falls, or women's wilfulness, in stumbling upon their hastie husbands' fists, or such like."

Convolvulus.—From *convolvo*, to roll together; from its twisting round other plants.

Convolvulus arvensis, Small Bindweed, or Corn Bindweed; called, also, Withe-wind, Barebind, Hedge-bells, and Devil's-guts.—However attractive this pretty plant may be to the botanist or florist, it is often a most troublesome weed to the agriculturist, and difficult to eradicate. The root creeps powerfully, and the stems entwine around and choke the plants of corn, pulse, or Grass.

Convolvulus soldanella, Scottish Scurvy-grass, Sea Bindweed. The premature decadence of the blossom is not peculiar to this species. It affords a no less apposite occasion for reflection than the more-usually-cited falling petals of the Rose:—"The beautiful evanescent flowers of the Convolvolus," observes WIFFEN, "live but for a day (whence called *Belle-de-jour* by the French), opening in the morning, and ere sun-set closing for ever. This, on account of the profusion of buds, is not generally noticed, and numberless successors take off our attention from the flower which 'has lived its little day,' and is now no more."

Conyza.—From κο'νιζα, *i. e.*, *cuni-lago:* the leaves, according to PLINY, destroying Gnats and Fleas.

CORRESPONDENCE.

RANDOM REMARKS ON NATURAL HISTORY.

To the Editor of the Naturalist.

DEAR SIR,—Three of the Nos. of *The Naturalist* which in my last I requested you to send me, are for myself, my little Dormouse having injured those I had by me, during one of his escapes. The pretty fellow met with his death accidentally last week, whilst suddenly opening a shallow drawer, where he had hidden himself. His resting-places, when he could elude me, where neither few nor choice—a roll of music, an old doubled-up newspaper, a chimney-ornament, and once a saucepan-lid hanging up against the wall, when he had escaped into the kitchen—in fact, any place cribb'd his little body, when taken asleep, as it were, in the midst of his gambols.

"Queen Wasps" are exceedingly numerous this Spring: they were out earlier than usual, and still continue very busy about the hedge-rows. It is asserted (see p. 33, note) that Earl FITZWILLIAM gives a shilling for every Wasp, "dead or alive," brought to him in the months of April and May; amounting sometimes to £5 or £6. If this be true, the demand upon his lordship's purse this season for Wasp-slaying is likely to exceed his income from his Bees, for in this neighbourhood very few hives have swarmed, whilst many cottagers have lost their old stocks during the Winter; in truth the Bees have done but little yet to repay the trouble and expence of keeping them. Is it not doubtful whether the plan of destroying Wasps in the Spring is of service to the hives? Wasps are notorious cowards, and never attack strong stocks. If they gain an entrance it must be because the Bees are few in number, weak, and of no use to their owners. Wasps are more partial to inert masses of sugar, fruit, and raw flesh, than to giving chase to Bees laden with their honied spoil. I have tried their tastes in various ways—have captured and brought home Wasps' nests, and kept them on purpose for observation, and I have ever found them giving the preference to food ready prepared and at hand, to the trouble of dissecting the Hive or Humble Bee. Much may be said in favour of this beautiful tribe of insects—of its affection for the young brood,—of its industrious habits,—and of its attacking nothing but what it requires for food; though it possesses in its sting a formidable instrument of pain. I once brought home a nest containing forty-three Wasps, with a number of young in all stages. On examining it the following morning, I missed the queen, and so had the Wasps; for on my opening the lid they one and all quickly sallied out. I went to the old haunt, found the queen injured, and incapable of flight. I brought her home, put her into the box, and was delighted to see how they attended to her, as well as to the young brood. In the course of the day she died. Here they were at fault, having no undertaker amongst them. I removed the body, and introduced another queen, which they soon attacked, killed, and dissected. Notwithstanding their want of a leader, they regularly left and returned to the box, placed close to one of my windows, fed and brought to maturity all the young family, and then departed, leaving me the deserted nest.

On referring to *The Naturalist* for May (Vol. IV., p. 433) I find Mr. RYLANDS has kindly answered my query respecting *Papilio podalirius*; and in the June number (Vol. IV., p. 479) Mr. BUIST has obliged me by transcribing a leaf or two of CURTIS's truly valuable work, for the general information of your readers. Will you allow me, through the medium of your Journal, to tender them both my sincere thanks for the same. It is to such gentlemen we junior entomologists gladly refer, and to such attentively listen.

I sincerely hope the number of subscribers to your spiritedly-conducted

Journal increases with your untiring efforts. That it may be the means of spreading far and wide the study of the natural sciences, and bring home to you a reward for your labours, is the wish of,

Dear Sir,

Your obedient servant,

Stoke-Ferrie, Norfolk,
June 13, 1839.

RICHARD PIGOTT.

SUGGESTIONS FOR PAPERS IN "THE NATURALIST."

To the Editor.

SIR,—I have read with much pleasure and profit the admirable papers, by yourself and Dr. SHIRLEY PALMER, on the birds of Europe, by Mr. HALL on British plants, and the articles by Mr. LESLIE RUSSELL entitled "Ornithological Selections and Criticisms." I should like to see the plan of selecting, criticising, and analysing, carried out into the other departments of Natural History, whether human works, or Nature herself, or both conjoined, formed the basis of such communications.

Hoping shortly to see this suggestion acted upon by some of your numerous readers and correspondents, I beg to subscribe myself,

Sir,

Yours respectfully,

AN ADMIRER OF "THE NATURALIST."

Shrewsbury, July 4, 1839.

PROCEEDINGS OF NATURAL-HISTORY SOCIETIES.

CUVIERIAN NATURAL-HISTORY SOCIETY.

In April last, the Cuvierian Natural-History Society met at supper at the close of their Winter session, Mr. SAMUEL BROWN in the chair; Mr. CLEGHORN croupier. The company was very numerous, as the office-bearers or representatives of most of the Societies connected with the Universities attended, as a mark of respect towards the youngest, though one of the most flourishing of the Societies. Besides the ordinary routine of toasts, songs, &c., much interesting information was communicated regarding the recent progress of Natural History in Britain, and especially the extension of the taste for such pursuits in many

of the country districts of Scotland. We understand that meetings of the Institution, during the Summer session, will be held as usual at different places in the neighbourhood of Edinburgh; and that the excursions will be more frequent this year, in order that the materials may be collected as soon as possible for the work on the Natural History of Edinburgh in course of preparation by the Society.

ROYAL ACADEMY OF SCIENCES OF PARIS.

Captain Rozet presented a note on a bone-cavern, in the department of the Saune-et-Loire. His object was to shew that the accumulation of bones in caverns was not always owing to the passage of currents of water for a long series of years, or to the residence of Carnivorous animals, but may be the result of both causes in succession. The cavern in question is situated at Vergisson, in the department of Saune-et-Loire, two leagues West of Masson. It opens on the face of a rock of Oolitic Limestone; it contains at its entrance, and in the crevices of the sides, bones of Horses and Ruminants, firmly imbedded in a hard reddish Travertin. The bottom of the cavern is almost entirely covered by a layer of argillaceous earth, apparently fallen through the crevices of the roof. In this layer are disseminated bones more or less gnawed, preserving their gelatine, and, as everything goes to prove, more modern than those in the Travertin. The cavern is inhabited by Foxes, who have established their earths in the lateral fissures, after having dug out the Clay. At the entrance of these earths, and in the floor of the cavern, M. Rozet has found bones newly gnawed, and to which tendons and muscles still adhered, as well as a quantity of Foxes' dung. The cavern of Vergisson, then, says M. Rozet, presents osseous deposits of two distinct periods—one in the red Travertin distributed at the entrance and sides of the cavern, as if deposited by an inundation, which did not reach higher than half the depth of the cavern; the other, much more modern, evidently brought by Carnivorous animals since the retreat of the waters. The order of succession appears to be inverted. This might be explained by the eruption of a modern current into a grotto, previously inhabited by ferocious animals, the presence of human bones sometimes found with those of antediluvian animals.

M. Pouchet, of Rouen, some time ago presented several results of his researches, proving that the yolk of the egg of the bird is not a fluid, but composed of vesicles pressed one against the other, and altered in shape by contact. He now writes to say he thinks this law is applicable to the majority of Mammalia, having detected the same condition in the ova of Cats obtained from the ovary, only that the vesicles are infinitely smaller than in birds.

M. Dutrochet writes that he has endeavoured to observe by means of a thermo-

electrical apparatus, whether the spadix of *Arum maculatum* exhibited any development of heat at the period of flowering, as had been first observed by M. Brongniart, and subsequently by MM. Van Beek and Bregsma, in *Colocasia odora*. The following is the account given by M. Dutrochet. The massive summit of the spadix of *Arum maculatum* begins to afford a heat greater than that of the surrounding air, about two days before the opening of the spathe. This heat encreases by little and little, until the spathe opens; then it exceeds that of the atmosphere by 11° to 12° centig., and continues so for about two hours, when it diminishes gradually, and disappears in about twelve hours.

At a subsequent meeting, M. Dutrochet communicated some new observations on the development of heat in the flowering of *Arum maculatum*. His former observations had reference to the superior part of the spadix: he now had to allude to the development of heat, by the male and female flowers occupying the lower part of the spadix. The heat of the superior part of the spadix is at its maximum when the expansion of the spathe is completed; at the same time the heat of the male and female flowers is also at its maximum, but not so elevated. The heat of the superior part of the spadix disappears in the night of the day it blows, while that of the male and female flowers continues, but in a diminished degree, and again rises on the following day, even beyond the former degree. The heat diminishes from the top to the bottom of the spadix, and in all parts it diminishes in the night and increases in the day. This diurnal paroxysm has also been observed in *Colocasia odora*, by MM. Van Beek and Bregsma.

Since the above communication was made, a note has been addressed to the Editor of *L'Institut*, from M. Bory de St. Vincent, stating that it was not M. Ad. Brongniart who first observed the development of heat in *Colocasia odora*. That MM. Van Beek and Bregsma should not have noticed what he had written on the subject in 1804, or the title of the French to the discovery, he says, is not surprising; but that such a deficiency of botanical erudition should be exhibited in Paris, requires explanation. As early as 1777, Lamarck had announced the development of heat in *Arum Italicum*. In 1802, M. B. de St. Vincent himself described *Arum cordifolium* (since called *Colocasia odora*), and noticed the manner in which the development of heat was discovered, with a long series of observations by M. Huber; and ten years afterwards, in his account of a voyage to the four islands of the African seas, from analogy sought-for and discovered an extraordinary development of heat in *Arum esculentum*, as well as in the anthers of other plants; he also observed, that the odour exhaled by these plants was perceived during the period of heat.

PHILOMATHIC SOCIETY OF PARIS.

M. Bazin called the attention of the Society to many nervous anastomoses which he had noticed in his memoir at the Academy of Sciences, especially those of the auditory and superficial petrous with the seventh pair, and that of the *chorda tympani*, with a new gangliform plexus, observed in Man on the internal surface of the inferior maxillary nerve, and which he names the inferior maxillary ganglion. This ganglion, as well as that of Arnold, called the optic ganglion, and some other smaller ones with which it communicates, belongs, according to Bazin, to vegetative life, principally to the circulation, and has scarcely any connexion with the organs of sense.

M. Audouin communicated a letter he had received from M. Lund, respecting fossil animals found in the Brazils.

M. Constant Prevost observed that it was greatly to be desired, that while M. Lund made known so many new fossil animals, he should also inform us whether the circumstances, as to the deposits, are the same as in Europe. All geologists were not of the same opinion as to the nature of these deposits. Many thought that the ossiferous caverns of France, England, and Franconia, had served as habitations for Bears, Hyænas, and other great Carnivorous animals, of which the remains are found mixed with those of Herbivorous ones which had been made their prey. This opinion was founded on the presence in certain caverns of gnawed bones, and the solid excrements of Carnivorous animals. Nevertheless, the forms of these caverns—the difference in level of the chamber,—the great number of bones,—the mixture of bones of large and small terrestrial animals, with those of fishes, and with fresh-water and even marine shells,—the stratification of the whole in mud or gravel containing rolled pebbles,—the heaping-up, even to the roof, of the deposit in some places,—the filling of cavities communicating externally, with the same material,—and the existence of the deposits of the same nature on the surface—all lead to the conclusion, that the caverns, now dry, were submerged at the period when the animals whose bones are contained in them were living. They were abysses into which the waters, fluviatile, lacustrine, or oceanic, carried or engulphed animals, dead or alive, which could not resist the force of the current. The sinking of a great many rivers—the Rhone, for example—might lead to similar accumulations of mud and bones in the caverns through which the waters were transmitted. Sudden overflowings, by the rupture of dykes or basins, might create temporary inundations, causing the accumulation of the bodies of animals in such places. He did not deny that these caverns might have been the haunts of Carnivorous animals subsequent to these depositions, which, if preserved, would not be found in the more ancient sedimentary deposits.

M. Milne Edwards communicated some observations on the respiratory organs of certain species of *Oniscus*. They present, in the structure of the false membranous claws of the abdomen, a remarkable modification. Each great transverse lamina, by which these organs terminate, presents on its inferior surface nine or ten linear stigmata, by means of which the air penetrates into as many little pulmonary pouches. These, lodged in the thickness of the appendix, have the form of elongated and flattened vesicles, of which the surface is throughout studded with a multitude of small tubular and branched prolongations which float in the nutritious fluid of the animal, and consequently constitute a form intermediate between the pulmonary cavities of *Arachnida* and the tracheæ of insects.

GEOLOGICAL SOCIETY OF THE WEST-RIDING OF YORKSHIRE.

The meeting of this Society, at Sheffield, took place on Thursday, June 6, in the Cutlers' Hall. The attendance at the forenoon meeting was highly respectable, and more numerous than on any former occasion.

On the motion of the Master Cutler, seconded by the Rev. Mr. Gibson, Lord Howard took the chair, and briefly opened the meeting. He said, he had not had opportunities of attending former meetings of the Society, chiefly on account of the distance from this neighbourhood at which the meetings had been held. He was happy that the Council had come to the determination of holding their meetings at the different large towns of the Riding; and, considering the importance of Sheffield, and the rich field for examination which its mineral districts presented, he thought they had shown a wise discrimination in fixing upon that town for the commencement of their new system. He had himself paid but little attention to Geology, though, in common with many around him, he had something like a personal interest in every thing that could throw light on the mineral fields, and the best mode of rendering available the treasures which Nature had provided beneath us.

On the motion of Henry Hartop, Esq., seconded by T. Wilson, Esq., the following gentlemen were elected members of the Society:—Messrs. B. Dixon (Wakefield), W. Jackson, T. Dunn, jun., B. Hounsfield, G. Hounsfield, Joseph Stevenson, Wm. Jeffcock, Dr. Holland, Henry Vickers, E. Vickers, J. Staniforth Beckett, John Aldred, W. Newbould, Neville Wood (Campsall Hall, Editor of *The Naturalist*), Rev. R. Wallace (Chesterfield), T. D. Jeffcock, John Jeffcock, Matthew Chambers, George Chambers, Thomas Chambers, John Chambers, and Thomas Newton, of Thorncliffe, Henry Thomas, Luke Palfreyman, W. F. Fairbank, Henry Jackson, Andrew Foulds, and Henry Boultbee.

T. W. Embleton, Esq., of Middleton, briefly remarked that at present there

was no survey of the county on a large scale, such as was necessary to an accurate delineation of the geological features of the country. He hoped that, by the assistance of similar Societies to this, in urging the matter on the attention of the Government, this important work might be promoted. He moved the adoption of a petition to the House of Commons, for a new ordnance survey of the Northern counties, on the scale of six inches to a mile.

The Rev. W. Thorp, of Womersley, near Pontefract, seconded the motion.

The petition was read by the Secretary, and adopted. It set forth that the Coal-fields of this district extend over 462 square miles, and contain many beds of Coal and Iron-stone of great importance to the manufactures of the country. That the risk and loss of capital in mining are greatly increased by the want of accurate knowledge of the condition of the minerals, and of records of former workings. That the objects of this Society are chiefly to obtain correct information on these subjects, and to record it for the public use; and that most of the gentlemen interested in the mining operations of the district have joined the Society. That a map on a large scale is necessary, because it is only on such a map that it is possible to lay down intelligibly and accurately the extent of seams, and the magnitude and bearing of faults and workings. That this object is so important in a national point of view, that it ought to be done at the national expense; and as the ordnance surveys of Ireland are on a scale of six inches to a mile, the petitioners prayed that the Legislature would authorise a similar survey of the Northern counties of England.

Wm. Lucas, Esq., then moved, and C. Morton, Esq., seconded a motion, appointing Mr. Brackenridge to audit the accounts for presentation to the next meeting.

G. W. Chambers, Esq., moved, and B. Biram, Esq., seconded a vote of thanks to the Literary and Philosophical Society of Sheffield, for making arrangements for this meeting.

John Aldred, Esq., moved, and W. Vickers, Esq., seconded a vote of thanks to the Master Cutler, for the use of the Hall. The Master Cutler expressed his gratification that it had been in his power to accommodate the Society.

H. Hartop, Esq., then moved, and C. Morton, Esq., seconded a resolution to invite the British Association to hold their next meeting in one of the towns of the West-Riding.

The Chairman called the attention of the meeting to some specimens of patent rope, manufactured by Mr. Joseph Scott, of Manchester.

Mr. Lee, on behalf of the manufacturer, explained that the three strands of the rope were each twisted, and also twisted together by the same action. The result was an equal twisting of all the parts of the rope, so that each fibre and each strand would bear an equal proportion of the weight.

The Rev. Mr. Thorp then proceeded to read a paper "On the Geology of the Neighbourhood of Sheffield." The paper was illustrated by sections and plans, to which the Rev. gentleman made frequent reference, and without which any sketch of the paper would not be intelligible to our readers. We must also add, that when he turned to the plan, the reader's remarks were very imperfectly heard in the body of the room. He observed, that the geological features of this neighbourhood were replete with interest. On the West were the great masses of Carboniferous Limestone, abounding in marine exuviæ; on the North were seen fine natural sections of rocks; on the East were seen the effects of enormous subterraneous force, by which solid rocks had been tossed up and down; and on the South were stores of most valuable Coal and Ironstone, facilitating the production of those articles for which this neighbourhood was unrivalled. Into the particulars of the paper we do not venture to enter, since we cannot hope to give them accurately. He adverted to the opinions brought by Mr. Hartop before the British Association, and at a former meeting of this Society, as to the difference between the strata on the North and South sides of the river Don. The section exhibited showed the Coal measures dipping Southward from the river, and Northward from the river; but between the points of the differing inclinations, there appeared several faults or breaks in an upward direction. These, he argued, must have been produced by a vertical action, and combatted the opinion that a lateral motion could have produced the effect.

Mr. Hartop said, as he had only last night been informed of the character of the paper to be read, he had not come prepared with those plans, &c., which were necessary to support the supposition which had been combatted by Mr. Thorp. He would remark, however, that the dislocation of the Coal measures, pointed out by Mr. Thorp, was improperly called a fault. It was a general movement of a great mass of strata containing many faults. He also pointed out one particular, in which he maintained that Mr. Thorp's section of the strata was greatly incorrect. He argued, too, that Mr. Thorp had not made due allowance for the height of the hills to the North of the river Don. Mr. Hartop also dwelt for some time on the Ironstone strata, and the identity of one particular stratum at several places. He called attention to the fact, that at Meadow Hall, and near the line of the railway, there yet remained erect a projecting rock, which led to the conclusion, that all the soil and rock about it had been carried away by the torrent, while it, owing to a greater capacity of resistance, yet stood. He argued also, on the testimony of Dr. Smith and other geologists, that it was no unusual thing to find large masses of strata completely overturned. He contended, however, that mere sections and plans were insufficient to render the subject intelligible, which could only be done by wooden models, and such he hoped at a future time to produce. In the present case he argued there were not

the characteristics of a common *fault*, for here the strata of different inclinations seemed to be morticed together as if they had been dovetailed by a joiner. He stated that what he had brought forward was not hypothesis, but the result of intimate acquaintance with the country, and he had brought forward the particular points adverted to because they were very remarkable. But how the dislocations took place, and the discussion of the why and the wherefore, he would leave to better judges to consider.

Mr. MORTON said, both gentlemen seemed to agree as to the effect produced. But the question was whether it had been by a vertical or a lateral movement? He thought Mr. THORP's argument for the vertical movement conclusive, and even the sections served to show beyond a doubt that the movement must have been upward.

Mr. HARTOP explained that he did not dispute the vertical movement, but had always admitted it.

Mr. MORTON understood Mr. HARTOP to have contended at Wakefield, and before the British Association, that the great dislocation of the strata in the Don valley was the effect of a lateral movement to the Eastward, and not of a lift up to the North.

Professor JOHNSTONE said, the question appeared to be, whether besides the vertical movement there had been a lateral movement, and whether that would explain the phenomena observable.

Mr. HARTOP said it was useless to argue that there had been a throw-up, for instead of disputing that, he had calculated it to be a throw-up of 700 yards.

Mr. MORTON said the notion was extensively entertained that the movement had been lateral and not vertical; and, therefore, he had addressed himself to that part of the argument respecting which Mr. THORP brought before them much valuable information, and whose sections proved that there is an enormous elevation of the strata to the Northward, and not a sliding of the strata towards the East.

Professor JOHNSTON remarked that Mr. THORP's explanation would account for all the phenomena he had observed, that Mr. HARTOP had brought under their notice one or two other effects, which seemed to have escaped Mr. THORP's notice; and if these were correct, they would require some further explanation, on which the professor made a few further remarks.

Mr. CHARLES MORTON then proceeded to read a paper "On the Utility of Geology, as applied to Mining, Agriculture, and the Arts." We are not able to give more than a few lines in reference to this interesting paper. He remarked, that geologists had too long been considered to be mere antiquarian theorists; but his object was to show the high utility of Geology. He adverted to the internal condition of the earth, as capable of being known from its exterior surface, and

to the immense losses which had been caused by the ignorant search for minerals, in situations where a geologist would at once know they could not be found. He adverted, also, to other cases, where the science of Geology had enabled Man to reach valuable minerals, in situations where ignorant persons had long been convinced they did not exist, or were inaccessible. Such was the discovery of the Warwickshire Coal-field, under the Red Sandstone, and the Hetton and other Durham Coals, which had been reached through the Limestone. In reference to railway operations, he remarked on the importance of going in the longitudinal direction of the strata. The case of the North-Midland was a remarkable illustration of this. The line followed the rule he had described, and went chiefly through soft cutting. But the opposition had attempted to bring it by a route which would have intersected the rocks almost at right angles. He adverted, also, to the advantages which Geology would confer on Architecture, and on Agriculture, in reference to manuring and draining; and the great value of geological knowledge to colonists. He referred to Dr. Smith, who may be regarded as the father of English Geology, and who has collected an immense amount of knowledge on the subject, which it is feared that his embarrassed circumstances will render him unable to bring before the world. Mr. Morton recommended this as an exceedingly fit case for the liberal interposition of Government. In various respects, the Government was now encouraging the increase of geological knowledge, which he hailed as a favourable sign of the times.

On the motion of Mr. Embleton, seconded by Mr. Wilson, the thanks of the Society were voted to the Rev. Mr. Thorp and Mr. Morton, for their valuable and interesting papers.

Mr. Hall then exhibited a patent hydraulic belt for raising water. The machinery consists of a cylinder working in the water, and another corresponding to it, a little above the point to which the water is to be raised. A woollen belt passing under the lower, and over the upper cylinder is moved by their revolutions, and brings up great quantities of water, which is thrown off by the working of the belt over the upper cylinder. By this cheap and simple machinery, it was explained that water had been raised to the height of 130 feet by a seven-inch band, at the rate of 86 gallons per minute.

The Chairman then announced the adjournment of the meeting to seven o'clock in the evening.

At four o'clock, about sixty gentlemen sat down to an ordinary, at the Tontine, when Lord Howard presided, and his Lordship took occasion to remark upon the importance of a Society so capable of rendering great services to the neighbourhood being adequately supported by all persons resident within the sphere of its operations. The interesting proceedings of this morning convinced him of the

great utility of this Society, and made him regret that he had been absent from the former meetings.

In the evening, Lord Howard, on taking the chair, expressed his gratification to see so large an audience. He remarked, that we so constantly use Coal, that we seldom think of its original formation, or of the hand that formed it; and yet we could scarcely find in Nature a greater proof of the wisdom and goodness of the Creator than in the ample provision he had made in the bowels of the earth for our advantage. He had no doubt that the lecture of the learned professor would have the effect of causing them to think of Coal, its origin, and its uses, with much juster views than they had been accustomed to do.

Professor Johnston then proceeded to deliver an elaborate and most interesting lecture on the origin of Coal. He first proved, by a variety of botanical and chemical arguments, that it is of vegetable origin; he then showed that it was formed by the decay of vegetable substances. In this branch of the inquiry, the professor explained minutely the composition of different kinds of Coals, and showed that the varieties are caused by the different stages of vegetable decay, to the continued progress of which operation, he attributed the generation of the fatal gases that occur in Coal-mines. The last branch of inquiry was, whether the masses of vegetable matter which form Coal had grown on the spot where they are deposited, or had been carried into hollows by inundations, and then settled in the masses in which they are found. The lecturer stated minutely the arguments alleged for and against each of these theories, and concluded that the balance of evidence was in favour of the theory that they had grown upon the spot. The lecturer concluded with a few observations on the vast masses of vegetable matter which had been laid up in store for the use of Man, and the proof which the subject afforded of infinite wisdom and beneficent design.

The lecturer concluded a little before ten o'clock, when a vote of thanks to the learned professor was moved by Mr. Embleton, and seconded by Mr. Morton, who described the lecture as one of the most interesting and instructive discourses that he had ever heard or read on the subject. The table of chemical gradations from vegetable matter, through the different varieties of Lignite and Brown Coal, down to Cannel, and True-caking Coal, was both original and beautiful, and as clearly established the vegetable origin of Coal, by chemical reasoning, as it had previously been proved by geological arguments.

After a vote of thanks to the Noble Chairman had been passed, the meeting separated.

REVIEWS OF NEW PUBLICATIONS.

A History of British Birds, Indigenous and Migratory; including their Organization, Habits, and Relations; Remarks on Classification and Nomenclature; an Account of the principal Organs of Birds; and Observations relative to Practical Ornithology. Illustrated by numerous Engravings. By WILLIAM MACGILLIVRAY, A.M., F.R.S.E., M.W.S., &c. &c. &c. Vol. II., *Cantatores*, Singers. London: *Scott, Webster, and Geary.* 1839. 8vo. pp. 496.

Mr. MACGILLIVRAY's first volume has been reviewed in *The Naturalist*, Vol. II., p. 279; and we were sufficiently well pleased on the whole with his commencement, to feel considerable interest respecting the continuation. The following pages will contain such remarks, criticisms, and extracts as, on a careful perusal, it has appeared to us requisite to make.

The occasional unnecessary digressions of the author, with the view of enditing not very friendly strictures on brother naturalists, have been noticed by more than one estimable writer. A similar fault sullies the present volume. Thus in the Preface, p. ii., it is inquired, who that has observed the noble Eagle in his native haunts, could commence a description of that noble bird in the "plain didactic style." Now this, of course, is intended as a home-thrust at Mr. SELBY; but its unfairness must at once strike all readers. For let it be remembered that the limits of a *manual* for students are necessarily very confined; and that subscribers would little thank the author for launching out into a florid, poetical, or sentimental account of his feelings as created by his reminiscences of each individual species. There are few who will not admire the style of AUDUBON and WILSON, in their splendid works on the birds of America; but a student's text-book, or "hand-book," being intended to impart merely the most important *heads* of a science, in the smallest possible space consistent with perspicuity, should, we opine, be written in plain language.

Let the author speak for himself respecting the objects of his *History*:—

"To the adepts in ornithological lore I have little to say. I presume not to instruct you, cannot hope to amuse you, and am destitute of ambition of in any way pleasing you. No man can more admire your ingenuity than I, or be more sensible to your merits, more grateful for your good intentions, or more ready to receive your instructions; but the Book of Nature is open to me as it is to you, and I will try to read it without your guidance. To the lovers of living nature, my friends and fellow-students, I would say: let us go together, imparting and receiving knowledge. You who have but commenced your journey, and whom I may without presumption consider as pupils, I am persuaded may with some advantage listen to my advice; and from you who have observed more carefully, and compared more strictly, the objects of our mutual regard, I may learn much that will interest me. To all those who, from whatever motive, may be pleased to peruse this work, I can only say that in it they will find nothing but what I believe to be correct; but there are

other books on the same subject, and I earnestly recommend to them to compare with it Mr. Selby's *Illustrations*, Mr. Jenyns's *Manual of British Vertebrate Animals*, Mr. Yarrell's *History of British Birds*, Mr. Wood's *British Song-Birds*, Mr. Mudie's *Feathered Tribes*, and as many more as they may find it expedient to purchase. They all differ from each other, and from this work, but all contain useful information, 'setting down,' as Don Quixote saith, 'the father, mother, country, kindred, age, place and actions to a tittle, and day by day, of the knight and knights of whom they treat,' and therefore may be consulted with advantage."—Preface, p. iv.

The author's remarks (p. 7) in favour of Anatomy need not here be produced, as every sensible and unprejudiced naturalist of the present day must feel perfectly satisfied that it is better to study the whole than a part, and that no portion of the structure of any animal is unworthy the attention of the zoologist.

At p. 12, in a chapter on "Practical Ornithology," Mr. M'G. goes out of his way to thrash one of his critics:—

"A would-be critic in a Magazine now extinct, conscientiously warns his subscribers of the folly of buying our book, alleging that the writing appears to him an affected attempt to imitate Izaak Walton and Audubon. These excursions of ours he dislikes '*in toto*,' body and soul, or, as he expresses it, 'substance and spirit.'

"Good pupil, be assured of this:—If ever you do an honourable deed, some one will find it reasonable to censure it. If you write a book, he who has penned a worse on the same subject, will make it his duty to decry it. Let him alone. Our walks are agreeable to ourselves, and useful to others, our conversation is not unworthy of the disciples of Linnæus, nor is our mode of observing Nature less efficient than that adopted by our neighbours. As to good old Izaak, we could not choose a more pleasant or pious pattern; and if my familiar and beloved friend, the American ornithologist, find anything, in fact, style, or manner, in my book, that belongs to him, he is alive, and can speak for himself. Long before I saw any of the admired productions of his pen or pencil, I wrote much as I write now; and when he accuses me of plagiarism, I will endeavour to convince him of his error. That time, however, will never come. I understand all this perfectly, and so do others.

"Don't mind it: I'll thrash the critic myself, should he be either a quinarian or a moss-trooper, whether of the English or Scotch side of the border.

"Were I to believe the critics, I should to-day fancy myself 'a genius equal to the majesty of Nature,' to-morrow a mere painstaking, prosing mortal, like one who, ambitious of authorship, not only draws birds, but engraves them, or at least scratches them on copper himself, and by a pretty free use of his wife's scissors ekes out the scanty stock of his own observations, and produces a book worthy of—being praised by his friends. But I believe nothing without proof."—p. 12.

And so on, in a similarly valiant strain—all by way of "Practical Ornithology." It seems to us that Mr. MacGillivray's book speaks sufficiently for itself, whether in its merits or otherwise, without an elaborate defence from so interested a party as its own author, and especially in reply to a member of the worshipful company of critics.

After some anatomical details, Mr. M'G. exclaims,—"And now, good pupil, persevering and industrious, I cannot suppose that *you* hold all this to be a digression." Undoubtedly if it be, it is not a useless one; but it can hardly be

conceived that, in advocating the claims of a favourite department of science, the author's views will be in any way advanced by his falling foul of "romances, rhymes, caricatures, and frivolities of all sorts." It may be presumed that the great end of life is happiness, which is best attained by the due exercise of all the faculties, but more especially of the highest. Does Mr. M'G. really believe the works of MILTON, WALTER SCOTT, SHAKSPEARE, &c. &c., "frivolous?" Unquestionably many "rhymes and romances" are "frivolous;" but if told that such is necessarily their character, surely the world of literature will unanimously declare against our author's opinion.

"The mere collector of plants of all men seems to be least capable of comprehending the harmonies of Nature." All one-sided men are incapable of comprehending the harmonies of Nature to their full extent; and the *mere collector* of plants, birds, insects, or coins—exercising only a few of the inferior faculties—must stand very low in this respect.

"The assertion that the Dipper walks at the bottom of the water," we are informed, "is not made good by observation, nor countenanced by reason and the nature of things. The Dipper is by no means a walking bird: even on land I have never seen more than a few steps, which it accomplished by a kind of leaping motion." Its singular habit of tumbling about in the water may have given rise to the erroneous though very general notion. The food of the Dipper is said by authors to consist of small fishes, roe, and water insects; but Mr. M'G., who has opened a great number of individuals, at all seasons, has never found any other substances in the stomach than *Lymnecæ*, *Ancyli*, *Coleoptera*, and grains of gravel.

The volume before us, like its predecessor, is enriched with numerous interesting observations by Mr. THOMAS DURHAM WEIR, of Boghead, Linlithgowshire. Take the following as an example:—

"In the hole of an old wall at the back lade of Livingston mill-dam, for a considerable time, I have observed one of their nests. The miller told me that a pair of them have built in it for thirty-one successive years, and that they generally had three broods in the season, and four birds in each of them. Although the nest was within a foot of the waterfall, which even sometimes passed over it, they nevertheless flew in and out with the greatest apparent ease." He adds:—"In a nest which was build in a mossy bank projecting over Boarbaugh-law Water, in May, 1835, I attempted to get a pair of them, but did not succeed. The young were so voracious, that as soon as their parents appeared, they popped their heads two or three inches out of the nest. To prevent them from doing so, I tied a string round their legs, and fastened them to the back part of it, and then placed a hair gin in front. Of this mode of procedure they were, however, so suspicious, that even after it had been removed, rather than they would venture to give them food, they allowed them to perish with hunger. I have twice tried this experiment since, but with no better success."—p. 61.

"It has been alleged," observes the author (p. 64), "that the Dipper, not having webbed feet, cannot swim; but this is not correct, for although it is unable

to make way against the current by swimming, I have seen it move slowly along the surface in smooth water." Moreover, the Coot, Gallinule, Grebe, and many other birds with feet either very partially or not at all webbed, swim with perfect ease.

The Golden Oriole is unquestionably an *English* bird; but since we learn that the specimens "in the museum of the Edinburgh University, mentioned by Mr. SELBY as having furnished subjects for his drawings, and as having been shot on the Pentland Hills, were, to my knowledge, brought from France by the late Mr. WILSON, Janitor of the University," its title to being a Scotch species must for the present be cancelled. This circumstance affords an additional reason for not admitting species into a Fauna save on the most undoubted authority.

Mr. M'G. adopts the generic name *Turdus* in preference to *Merula*, for the Thrushes; but, although it would now cause needless confusion to recur to the appellations of the early writers, we cannot but deprecate the plan pursued by LINNÆUS of giving new names to genera and species already well designated by his predecessors. The names determined in the *Systema Naturæ* are so universally known and employed, that they cannot profitably be exchanged for those of preceding naturalists; but in future systematists thus offending cannot expect to be so leniently dealt with.

After referring to the remarks of various writers in *The Naturalist* on the subject, the following statement occurs :—

"Thus much I have observed, not as a singular circumstance, nor even as one common to a few individuals, but as exhibited at all seasons, at the period of breeding, and in the middle of Winter, and by very many birds of the same species, that the male on perching, whether on a tree or on the ground, but especially on the former, raises his tail, flutters, it might almost be said flaps, his wings, emits his chucking cry, and continues balancing himself, or hops along, repeating the notes, which, should he be alarmed, or in any way excited, are sometimes raised and prolonged so that a person fond of tracing affinities and analogies, might naturally enough liken it to the crowing of a cock."

The author then proceeds to ridicule the "modern doctrine of analogies," but here it will not be profitable to follow him. Now the author of *British Song-Birds* has noticed the circumstance of the Blackbird crowing like a cock, because he is "fond of tracing" Nature in all her varied haunts and recesses; and if analogies are to be found in Nature, no doubt he will be fond of tracing them.

Mr. M'G. remarks (p. 38) that "few persons seek an opportunity of hearing the song of the Blackbird in the early morning before the first rays of the sun shoot across the Eastern sky; but many listen to it with delight in the quiet evenings of Spring and Summer, when the other songsters, except the Thrush or the Nightingale, are mute, and when its mellow notes come swelling on the ear, shedding a benign influence on every heart not entirely hardened by an habitual disregard of Nature. On the 1st of May, 1837, a Blackbird in the garden com-

menced his song at three in the morning; a fortnight earlier I heard one as early as half-past two; and in the middle of Summer I have listened to it before going to bed, when the twilight peeped in between the shutters upon the untired student thus admonished of the propriety of intermitting his labours." We too have listened to the Blackbird at all these unseemly hours; but to our ear never does the song appear so deliciously mellifluent as during those light and refreshing showers so frequent and so refreshing in the Summer of our temperate clime.

Mr. Weir (p. 92) describes a matrimonial alliance, in a state of nature, between a male Blackbird and a female Thrush. Mr. W. did not see the eggs, on account of the nest being so cunningly concealed as to be with difficulty and only after a long time discovered; and the nest was one day carried off by birds'-nesters. It is to be regretted that no mention is made of the composition of the nest.

Pennant, Montagu, and other estimable writers state that among the feathered tribes all the cares of life fall to the female, and that after the young are hatched the male ceases to sing. In many cases both these observations are correct; but perhaps as regards a still greater number of species they will not hold good. Mr. Weir's observations on this subject are deserving of attention. The ensuing anecdote, from the pen of Mr. T. D. Weir, will also be read with interest :—

"That some of the notes of birds are a language which conveys a direct meaning, may, I presume, be inferred from the following interesting occurrence, which took place at half-past three o'clock,—an occurrence which I witnessed with the most anxious curiosity, and which I could scarcely have believed had I not seen it. The female [Blackbird] having brought a large Worm, I am sure not more than four inches in length, put it into the mouth of one of the young, and then flew away. Upon her return, having perceived that it was sticking in its throat, she set up the moan of distress. To her assistance her cry immediately brought her partner, who likewise seemed to be aware of the consequences. To force it down they made several efforts, but in this they were unsuccessful. Strange to tell, the male at length discovered the cause of the catastrophe. That part of the Worm which by being entangled among the feathers of the breast had been prevented from going down, he carefully disengaged, and held it up with his bill, until, after the most unusual efforts, the young bird at length swallowed it. But so much exhausted was it that it remained nearly three hours without moving, and with its eyes shut. The male, having alighted upon a tree a few yards from his nest, poured forth some of his most enchanting notes—a song of rejoicing, no doubt, for the narrow escape from death which one of his family had lately made."—p. 94.

"The flesh of the Blackbird," according to our author, "is excellent, as indeed is that of all our other species, although, I believe, very seldom used as an article of food. The good people who unhesitatingly feed on innocent lambs, gentle Doves, and confiding pullets, look with a kind of abhorrence on the cruel slaughter of Blackbirds. This, however, it is obvious, is mere selfishness." Our own objection to the destruction of singing birds for food is not on the score of cruelty, for that could not be gravely maintained by those who countenance the slaughter of cattle, &c.; but, in the first place, because—like the dishes of *Nightingales'*

tongues—so considerable a number is required to make a tolerable meal for a single individual; and secondly, because it wars against our associations, poetical and ornithological, to put the "songster of sky and cloud," or the melodious tenants of the grove, to so gross a purpose. When other and more obviously natural food becomes scarce, or when there shall be a grievous lack of dainties for the palate, then and then only shall we consent to feed on dishes of Nightingales' tongues, or of Blackbirds. That the feeling is "selfish," we willingly admit. When a man performs a benevolent action, he does it *to gratify his Benevolence;* when he performs a conscientious action, he does so *to gratify his Conscientiousness;* when he murders a fellow-creature, he commits the brutal action *to gratify his Destructiveness*, and other low passions. Finally, every action, good or evil, of every human being, is performed with a view of gratifying some faculty or faculties; all these are selfish objects, and cannot be otherwise. The only distinction can be as regards the *tendency* of such actions, since they are all supposed—however erroneously—to conduce to the happiness of the individual most concerned.

"On referring to the descriptions of the Blackbird by British authors, I find nothing in them to which the reader may be desired to look; and I may be allowed to observe that my own observations, and those of Mr. Weir, recorded above, seem to afford a fuller history of the species than any hitherto published in this country at least. Montagu and Selby are both remarkably brief on the subject; but Mr. Wood treats it in an interesting manner, presenting, as he generally does with species which he has carefully studied, a full account of its habits. In one or two cases of no great importance I should be inclined, however, to dissent from his opinion. Thus, he says, 'its strains are not so loud as those of the Garden Thrush;' but I think they are much louder, although probably they cannot be distinctly heard at so great a distance."—p.98.

Mr. M'G., while he conceives (p. 113) that the Fieldfare may be found to breed in Britain more frequently than at present supposed, shrewdly suspects the nest may in some instances have been mistaken, a person having brought him the eggs of the Missel Thrush for those of the Fieldfare.

In Winter the Missel Thrush is more easily shot in the retired shrubberies and parks of England than appears to be the case in the neighbourhood of the Scotch capital; but at other seasons it is remarkably shy and distant. Mr. Weir mentions (p. 122) that the Missel Thrush kills and eats young birds, which is a fresh and hitherto unrecorded instance of the well-known keenness of its appetite. The author agrees with other writers in stating (p. 118) that the flocks of Missel Thrushes seldom exceed twenty; but Mr. Weir says (p. 124) that in his neighbourhood they assemble in large numbers in Winter, and on Aug. 11, 1837, he saw about seventy of them flying and feeding in the same way as the Fieldfares, on the estate of Sir Wm. Baillie, at Polkommet. Might not some of these birds have been Fieldfares?

Mr. Weir (p. 137) expresses surprise that in a work published so recently as

the *Feathered Tribes* (1834), Mr. MUDIE represents the Thrush as carrying food for its young in the *stomach* instead of the bill. Mr. W. adds,—"If in England the Thrushes carry food to their young in their stomachs, I can affirm that in this neighbourhood they are not accustomed to do so."

Mr. WEIR says that—

"Wishing to know how soon Thrushes would build after having been deprived of their young, I took four ripe ones out of a nest on June 6, 1837. Having caught the female, I pulled the feathers out of the tail, and set her at liberty. On June 21 I discovered her sitting upon four eggs, of which I deprived her, and on July 8 she again had a nest with eggs. I allowed her to bring up her family unmolested."—p. 139.

Mr. WEIR records an instance of a "most beautiful pure white [Sky] Lark which frequented the farm of Tailend, belonging to Colonel S. NORVALL, Esq., of Boghall, during the months of August and September, 1835. It disappeared about the end of October."

"The eggs of all small birds are delicious; those of the Sky Lark, Meadow Pipit, Wheatear, Thrush, and Corn Bunting, I have often, when a boy, eaten in the Hebrides, after being roasted in peat ashes." The ancient Romans, during their age of luxury, were in the habit of giving immense sums of money for a small dish of savory fish, or other curious dainty. Italians will condescend to eat a fry of Nightingales' tongues, whereas the rest of the bird is by far too gross for their *refined* taste. The French epicures feed on the hind legs of Frogs, which are by no means destroyed by the operation of "plucking," but are then kindly restored to their native marshes. How many Wrens' nests are despoiled of their eggs in order to afford Mr. MACGILLIVRAY a satisfactory breakfast on a Summer morning?

Owing to the recent discoveries in the British species of *Motacilla*, Mr. M'G.'s is the first work in which those discoveries have been incorporated. The species are:—1. Grey-headed Oatear, *Budytes flava*, MUSIGN.; 2. Green-headed Oatear, *Budytes Rayi*, MUSIGN.; 3. Grey-and-white Wagtail, *Motacilla alba*, LINN.; 4. Pied Wagtail, *Motacilla Yarrellii*, GOULD; 5. Grey-and-yellow Wagtail, *Motacilla boarula*, LINN. The *first* species is the common *Motacilla flava* of Continental—but not of British—writers, it being abundant abroad, but recently discovered to be rare with us; the *second* is the Yellow Wagtail, *Motacilla flava*, of English—and *Bergeronnette flaveole*, *Motacilla flaveola*, of Continental—writers; the *third* is *Bergeronnette grise*, *Motacilla alba*, of the Continent, some specimens of which our author has received from the South of Scotland; the *fourth* is the common Pied Wagtail of Britain, which Mr. GOULD says is only found in Scandinavia in addition to the British islands; the *fifth* is the Grey Wagtail, *Motacilla boarula*, of British and Foreign naturalists.

The Hedge Dunnock (*Accentor modularis*) is said (p. 255) to use a great

quantity of minute fragments of Quartz and other hard minerals, seldom met with in the gizzards of *Sylviæ*, "so that with respect to feeding it resembles the Larks and Thrushes."

"Mr. Neville Wood remarks that 'none of our smaller British birds (the Fieldfare Thrush excepted) will build in a tree or bush which already contains a nest, whether that nest be deserted or not.' I have seen, however, in a Honeysuckle bower three nests of small birds, namely, the Thrush, the Green Linnet, and the Hedge Chanter; and Sparrows sometimes build among Rooks' nests. That successful observer of the habits of birds has given a very detailed and most accurate account of those of the present species, which I therefore beg leave to recommend to notice; but from which I must refrain from making extracts, being anxious to relate as little as possible of the observations of others."—p. 256.

Mr. MacGillivray says (p. 267) he has never met with the Robin Redbreast's nest in a tree, shrub, or hedge. We have occasionally seen it in a low bush, and during the present year (1839) found one in the midst of a thick Hawthorn hedge.

Our author states that the blood of the Robin Redbreast has a singularly bitter and nauseous taste, as he happened accidentally to ascertain by removing with his mouth some drops from one which he intended for description.

"At its arrival and previous to its departure, it [the Fallow Chat] is generally in good condition, and, its flesh being very delicate and sapid, it is caught in the Southern parts of England in great numbers, and sold in the markets at a high price. In Scotland, however, I have not heard of its being used as an article of food, although I am entitled from experience to commend the good taste of those who consider it a delicacy. The eggs are still more delicious; but as a truly aristocratic food, especially for nervous females and hysterical dandies, I can more conscientiously recommend those of the Golden-crested Kinglet and Blue Tit."—p. 295.

Mr. M'G. is convinced that the Redstart shakes its tail "vertically, *i. e.*, up and down, and not alternately to either side," as has been supposed. In the *British Song Birds*, no positive statement is made in this particular; but our observation has since accorded with that of our author.

The greater part of the history of the Nightingale is written by Audubon, expressly for the work under notice. He observes (p. 328) that he has "seen the young, when not much more than half-fledged, leave the nest, and hop about its vicinity during the day, but return towards evening, and huddle together, their mother covering them with due care." Fully-fledged birds will often thus return to the nest at dusk of evening, unless the locality be much frequented; and sometimes, if the nest be more freely handled than comports with the proprietor's ideas of propriety, young birds a few days old, and almost wholly featherless, will immediately disappear. In such cases it is presumed they are successively carried off by one or both parents. We are not, however, aware that this remark will apply to Nightingales. Mr. Audubon appears to consider the song of the Linnet, Wood Lark, Goldfinch, &c., fully equal to that of the Nightingale, in which, probably, but few readers will agree with him. He moreover states that

the Bullfinch has naturally no song at all, which, on reference to *British Song Birds*, p. 397, will be found incorrect. We, as phrenologists, consider the fact of the Bullfinch being taught to whistle tunes with great correctness (so triumphantly cited by AUDUBON, as a proof of the superiority of the Bullfinch's musical powers over those of the Nightingale) at once to settle the question whether or not the Bullfinch has a natural song, in the affirmative.

It is stated, p. 334, on the authority of Mr. R. D. DUNCAN, that the Nightingale has been heard as far North as Calder Wood, East-Lothian, in the Summer of 1826. This, however, is but a solitary instance.

Mr. MACGILLIVRAY has the following paragraph relating to the song of the Nightingale:—

"Most authors profess to be in raptures when describing the song of this far-famed bird; but some would detract from its alleged merits, and consider it in some respects inferior to the 'Mavis and Merle.' My acquaintance with this species, however, is so slight, and my capability of appreciating musical talent so feeble, that I am obliged to refer to the report on this subject of a gentleman who seems to me to possess the qualifications wanting in myself. Mr. WOOD, in his *British Song Birds*, gives the following account of it. 'The strains are loud, rich, mellow, silvery, and clear, and so far from being a *miserabile carmen*, as sung by VIRGIL, and other classic poets, I know few songs which are its equal in sprightliness and vivacity, with the exception, however, of one part, consisting of three or four lengthened notes, beginning very *piano*, and gradually rising to *crescendo* and *forte*, which are certainly of a peculiarly melancholy character. The song of this bird does not equal that of the Garden Ouzel in mellowness, nor that of the Garden Thrush in loudness, but it certainly excels all others as a whole.'—IZAAK WALTON'S eulogy is more flattering:—'The Nightingale, another of my airy creatures, breathes such sweet music out of her little instrumental throat, that it might make mankind to think that miracles are not ceased. He that at midnight, when the very labourer sleeps securely, should hear, as I have very often, the clear airs, the sweet descants, the natural rising and falling, the doubling and re-doubling of her voice, might well be lifted above the earth, and say, "Lord, what music hast thou provided for the saints in Heaven, when thou affordest bad men such music on earth?"'"—p. 335.

It is justly and strikingly remarked, at p. 429, that the Tits are nearly allied to the Jays, in their omnivorous character, their habits, and their shape.

"The eggs [of the Blue Tit] are numerous; some authors have made them amount to twenty, while others allege that they are not more than from six to eight. MONTAGU states, that he never found more than the latter number, and Mr. NEVILLE WOOD considers twelve as the maximum; but on this subject I cannot speak with certainty."—p. 435.

It will be perceived from this extract that Col. MONTAGU had never met with more than *eight eggs* in the Blue Tit's nest; but in the wall of an outhouse, adjoining Foston Hall, Derbyshire, many years ago, we counted as many as *ten young birds, and one addled egg*, all in one nest. It was one of the most beautiful sights imaginable to see the parents feeding this large and lovely brood after it had quitted the nest.

Alluding to the engaging habits of the Coal Tit, Mr. M'G. remarks, that "even

the geologist, pondering on cataclysms, central fire, convulsions, and revolutions, and dreaming of the overturning of the primeval forests and their conversion into beds of Coal, looks up and admires the busy creatures, whose thoughtless glee has disturbed the workings of the mighty genius which had almost completed the creation of a world."

"If any of my readers should be curious to know how an author may contrive to talk a great deal about nothing, he may consult the article CRESTED TIT in an amusing work entitled *The Feathered Tribes of the British Islands.*"—p. 452.

After all, the article in question barely extends to two pages, one-fourth of the whole being occupied by the description of length, plumage, &c.; and we must think the remaining space more usefully occupied than some portions of Mr. M'G.'s work. However, opinions may differ on that point.

A nest of the Long-tailed Tit, mentioned at p. 458, contained *eighteen young birds*, nearly fledged. The lovely architecture of this curious little bird is familiar to most ornithologists, and is well known almost invariably to possess but one hole, though instances of two holes in the same nest are on record. The author observes (p. 458) that the feathers lining the nest, when shaken together, "suffice to fill a hat of moderate phrenological pretensions, although not exactly mine, which belongs to what may be called a dunderhead."

The volume concludes with a very pleasant chapter on "Practical Ornithology," and here we too must be drawing to a close. The author promises us three more volumes, and states that the length of interval between the publication of each will in some measure depend on the support received. Barring what may be considered some trifling blemishes, it is a long time since we have read a more freshly original, a more instructive, or a more valuable work of the kind than that of Mr. MACGILLIVRAY, as far as it has gone; and we are glad to notice a great improvement in the general character of the illustrations in the present volume.

Supplement to the History of British Fishes. By WILLIAM YARRELL, F.L.S., V.P.Z.S. Illustrated with Woodcuts. In two Parts. London: *John Van Voorst.* 1839. 8vo. pp. 72.

THIS *Supplement* includes several new fishes discovered since the publication of the *History.* The style of description and illustration is in no way inferior to that of the body of the work, and it is to be regretted that we have not at present room even to furnish an outline of the contents of the book. The numerous additions to the catalogue of native fishes must be accepted as a gratifying proof of the zeal and ability of British ichthyologists.

British Coleoptera delineated; consisting of Figures of all the Genera of British Beetles, drawn in outline by W. Spry, M.E.S. Edited by W. E. Shuckard. Parts 1 & 2. London: *Crofts.* 1839.

Dr. Leach remarks that "no person can pretend to the distinction of a good naturalist, who has altogether excluded from his attention the subject of Entomology." That branch of natural science has, however, notwithstanding the many inducements which it offers to the lovers of nature, been much neglected in this country. We are at a loss to find a sufficient reason for this neglect. Our talented friend the Editor of the *Phrenological Journal* may amuse himself by styling the study of insects "comparatively contemptible;" but if it opens to the view so many of Nature's most peculiar forms, conjoined with habits which in variety and interest will yield to those of no other branch of the animal kingdom, we nevertheless contend (whilst freely admitting that Phrenology is of greater importance to Man as a moral and intellectual being, and that other sciences are better calculated to aid him in the produce of wealth) that as a source of pure intellectual pleasure, of delightful investigation, and of rational relaxation, the despised "creeping things" very well deserve the attention of the "lords of creation." Holding these views, we cannot but be highly gratified that there is every appearance that Entomology will at no very distant period take a rank in Britain equal to that allotted to it on the Continent. Introductory as well as other works, from the pens of some of our best entomologists, are fast issuing from the press—a plain evidence of increasing attention being paid to the science. Mr. Westwood's interesting *Text-Book* is before the public, and that gentleman is now engaged in writing his *Introduction to Modern Classification* (the first part of which was reviewed Vol. III., p. 387, of *The Naturalist*). Mr. Hope has latterly favoured us with two volumes of his *Coleopterist's Manual;* and monographs on the *Chalcididæ* by Mr. Walker, and on certain *Hymenoptera* by Mr. Halliday, have just appeared. We can only as a passing remark regret that the two authors last mentioned have written their works in Latin—fair evidences of the difficulty of ridding ourselves of an *old*, though it be a *bad* habit! Mr. Curtis, on the completion of his invaluable *British Entomology*, promises to supply the desideratum of a *Synopsis of British Insects*, which will place in the hands of the student descriptions of all the species hitherto discovered. Mr. Stephens has also announced as "just ready," for *several months* back, a *Manual of British Beetles;* and now Mr. Shuckard is about following up his *Essay on the Indigenous Fossorial Hymenoptera* with *Elements of British Entomology*, the work of which the title is prefixed to the present article. Truly the names of Westwood, Curtis, Hope, Stephens, Walker, Halliday, and Shuckard, all busily engaged in enlightening the public on Entomology, present a goodly array,

and at the same time a significant manifesto that the said public is beginning to take some little interest in the science.

One thing only detracts from the gratification arising from the publication of the works just mentioned. In order to place natural-historical works at a price within the reach of the majority of students, there must be a *demand* for them. Every thing tending to lessen this demand is calculated to do injury to the interests of the science. It is evident that the publication of *two* works at *the same time* having *very similar objects* must do this, as the circulation of each will necessarily be considerably lessened by the rivalry. Nevertheless, we find Messrs. Curtis and Stephens announcing descriptive synopses of British insects, and Mr. Shuckard issuing *Elements of British Entomology*, which, from the prospectus, we have no doubt is almost exactly similar in its design to Mr. Westwood's *Introduction*. Why is this? Are the provinces of labour in the entomological field so few as to render it necessary for the workers to *clash*? Or must we attribute it to a more inexcusable cause—to the existence of feelings which every man is bound to banish from his scientific pursuits? It is only fair to add that we have reason to believe that Mr. Curtis's intention of publishing a *Synopsis* was known before Mr. Stephens announced his *Manual;* and that Mr. Westwood's first part had appeared ere Mr. Shuckard's *Elements* were advertised. Whatever blame there is in this matter, is consequently due to Messrs. Stephens and Shuckard.

Having performed what we considered our duty, in drawing attention to the above facts, let us turn to the work of which the present is more particularly a review. And here we have pleasure in stating that the felicity of the design is equalled by the execution, and that to Mr. Westwood's *Introduction*, which has principally reference to the higher divisions, the generic illustrations by Messrs. Spry and Shuckard will form a worthy companion. Nor is such a publication unnecessary. Rœmer's *Genera Linnœi et Fabricii illustrata* is indeed a beautiful work, with figures of superior boldness and accuracy, but then it must be remembered that it only illustrates a *tithe* of the genera now found in our catalogues; and Curtis's *British Entomology*, to which that objection is of course not applicable, is unfortunately too dear for the convenience of the many. Mr. Spry has delineated the insects accurately, and the figures are well lithographed. We are sorry, however, to perceive some errors in the references to one of the plates. A strict investigation of the others might possibly have led to the detection of further inaccuracies. As it is, however, we trust the notice of the following will lead the Editor, by careful attention, to abolish so fertile a mode of misleading students, to say nothing of bringing discredit on himself. In the references at the foot of plate 28, fig. 6 (*Oiceoptoma*) is designated *Necrophorus;* fig. 7 (*Necrophorus*) is called *Necrodes;* and fig. 8. (*Necrodes*) is stated to be *Oiceoptoma*.

Nor are we perfectly satisfied with the letter-press. In the first place, the nomenclature is objectionable. Mr. SHUCKARD introduces *eight* ranks of groups without sub-genera. Of these the "races" might certainly be dispensed with. Of what use are Mr. KIRBY's divisions of the tribe *Carabacea*, RYL. (*Geodephaga*, MACL.) into *Eupterina* and *Eutrechina?* They cannot assist the student in the least, and therefore, as increasing the number of groups, are only calculated to puzzle him. Again, Mr. SHUCKARD dispenses with any distinctive terminations in the designation of tribes, and distinguishes sub-families (or "groups," in Mr. S.'s phraseology) by *ini*. Now what possible excuse can there be for altering the almost universal method of distinguishing sub-families by the termination *inæ?* These matters may be considered of little importance by some; but when it is remembered that much necessity exists for rendering entomological science as easy of acquisition as possible, we think we are justified in entering our protest against an author's thus uselessly adding to the confusion which already exists in our taxonomy. We should also have been better pleased had Mr. SHUCKARD seen the propriety of giving generic characters in the letter-press. It is a poor apology for this omission to remark that "as cheapness was an important consideration in the publication of this work, it was requisite to limit, as much as possible, the extent of the letter-press, and this is of less moment as very ample generic descriptions will be found at large in the Editor's *Elements of British Entomology.*" Concise generic characters could have made little or no difference in the "cheapness" of the work, nor should "the Editor" presume on all the subscribers to the *Delineations* being agreeable to purchase the *Elements*. As far as we are able to judge, the arrangement of the *Adephaga* (which is not completed in the parts before us) coincides in almost every respect with the views stated at p. 73 of the last volume of *The Naturalist*. Thus far we have the pleasure of agreeing with Mr. S.; and, having stated above all that appears objectionable to us in the publication, we cannot close this notice without adding that we should wrong our readers did we not recommend it to their patronage and support.—P. R.

A History of British Reptiles. By THOMAS BELL, F.R.S., F.L.S., V.-P.Z.S., &c. &c. &c. Illustrated by more than Forty Wood-cuts. London: *John Van Voorst.* 1839. 8vo. pp. 142.

THIS work is at length finished, in three numbers, forming one volume. As the two first parts have now been some time before the public, and considering the deservedly extensive circulation long since attained by the series of which they form a part, a minute analysis will, it is presumed, be unnecessary. The work is very appropriately dedicated to Mr. YARRELL.

LITERARY INTELLIGENCE.

Mr. Charles Clay, Surgeon, has published *Geological Sketches, and Observations on Vegetable Fossil Remains.*

The following works are in preparation, to be published in parts, periodically:—

1. *A History of British Forest Trees*, Indigenous and introduced. By Prideaux John Selby, Esq., F.R.S.E., F.L.S., &c. With Illustrations.

2. *A History of the Fossil Fruits and Seeds of the London Clay.* By James Scott Bowerbank, F.G.S. With Illustrations.

3. *A History of British Crustacea.* By Professor Bell. The Figures by J. O. Westwood, Sec.E.S.

4. *A History of British Ferns.* By Edward Newman, F.L.S. Illustrated with a Wood Engraving of every Species and named Variety, drawn on wood by the Author, and showing the figure of the Frond, the Fructification, and Venation of each.

SELECTED POETRY.

TO THE EAGLE.

Lord of the lofty sky!
In whose undazzled eye,
E'en yon bright sun loves his image to see:
Emblem of mightiness!
Where is thy dwelling-place?
Oh! to take heavenward one proud flight with thee!

High on the thunder cloud,
When it roars long and loud,
Is thy fire-fostered throne, whence lightnings flash bright.
Where on thy mighty wing,
Where art thou journeying?
Winging away through the wide fields of light!

O'er rock and rapid rude,
O'er the sea's ample flood,
High o'er the sun-beams that pour forth the day,
Through yon dark cloudy glen,
Far out of mortal ken,
Bird of the mountain, hie, hie thee away!

Then high on the Cairngorm,
Rock'd by the thunder-storm;
Quench'd in dark slumber thine eye-beam shall be.
Bird of the lofty sky,
Bird of the piercing eye,
Oh! to take heavenward one proud flight with thee!

H. I.

TO A WHITE CROCUS.

Sweet floweret, thou seem'st, when the sun's shining bright,
Like a fairy queen deck'd in her dazzling white,
With dew-drops for diamonds, adorning thy head,
And the green leaves around thee, thy own fairy bed.

Young hope of the garden, announcer of Spring,
Foreteller of flowers, that the Summer will bring,
How it gladdens my heart to see thy first peep,
As if Nature intended no longer to weep!

Like the hope of poor mortals thou liv'st through the storm,
And the snow, though so cold, keeps thee but more warm,
Like hope, too, as soon as the Summer comes on,
Forgotten among the gay throng, thou art gone!

But again thou wilt come, as bright as before,
And tells us that Summer is coming once more,
As fondly be hail'd, and perhaps lov'd as well,
As the gay troop of flowers it is thine to foretell.

And is it not so with the hope of the heart?
And does it not often more pleasure impart,
Than the gain of the long hop'd-for object we 've thought
Could scarcely too soon or too dearly be bought?

ZETA.

THE CARRIER PIGEON.

(*From the French of Beranger.*)

The wine-cup was bright, and my beautiful maid
Sung the Gods of old Greece and her vanished renown:
We compared her to France as we sat in the shade,
When a bird at our feet sank exhaustedly down.
To his wings was a letter attached, which he brought
Over mountain and main, to some soul-cherished spot.
Come, drink at my goblet, poor messenger dove,
And rest from thy flight on the breast of my love.

His wanderings have wearied and wasted his wing:
Ah! quickly restore him, and let him depart.
Does he bear the advice of a merchant? or bring
To the eyes of gay beauty the voice of the heart?
He carries, perchance, the last wish and the prayer
Of the lorn and the exiled who dies in despair;
Come, drink of my goblet, poor messenger dove,
And rest from thy flight on the breast of my love.

But these words on the missive would seemingly say
That from Athens it goes to her exiles in France;
And its theme must be glory, and therefore we may,
As protectors and friends, snatch a cursory glance.
Announcement of happiness! Athens is free!
Fresh laurels, O Greece, shall be planted for thee:
Come, drink of my goblet, poor messenger dove,
And rest from thy flight on the breast of my love.

Let us drink to free Greece! mark, my charmer, the throng
Of those demi-gods newly arisen in her clime!
Old Europe, in vain, disinherited long
Her grand epic ancients of mythical time.
Fair Athens victorious, all glory be thine!
For the worship of ruins no longer a shrine!
Come, drink of my goblet, poor messenger dove,
And rest from thy flight on the breast of my love.

Yes, Athens is free! Muse of Pindar resume
Thy sceptre, the lyre, and her loftiest tone;
Despite the Barbarian, she bursts from her tomb;
Despite the vain monarchs, her freedom is won.
And, taught by her fame, let the universe see
An Athens for ever, O Paris, in thee!
Come, drink of my goblet, poor messenger dove,
And rest from thy flight on the breast of my love.

Sweet wanderer of Hellas! repose thee, and then
Fly off to thy turtle, who chides thy delay.
Soon, missioned from Athens, come braving again
The tyrants and Vultures that frown on thy way.
Return from the free, and let Liberty's tones
Strike the ears of our kings on their tottering thrones.
Come, drink of my goblet, poor messenger dove,
And rest from thy flight on the breast of my love.

—*Athenæum.*

O! THE FLOWERY MONTH OF JUNE.

O! the flowery month of June, again, I hail as Summer's queen;
The hills and vallies sing in joy, and all the woods are green;
The streamlets flow in gladsome song, the birds are all in tune,
And Nature smiles in Summer pride, in the flowery month of June!

There's music in the laughing sky, and balm upon the air;
The earth is stamped with loveliness, and all around is fair.
There's glory on the mountain top, and gladness on the plain;
The flowers wake from their wintry bed, and blush in bloom again!

O! the flowery month of June, my heart is bounding wild and free,
As with a fond and longing look, I gaze once more on thee!
With all thy thousand spangling gems—a bright and blessed boon—
That come to cheer and welcome in, the flowery month of June!

The Lark hath sought an upward home, far in the dewy air;
While lowly by the Rose's cheek, the Blackbird's singing there;
Or, in its leafy bowers unseen, the Thrush bursts forth in song,
A low and pleasing melody, the woody dells among!

O! the flowery month of June, ah! me, where are the fond ones fled?
No Spring comes for the parted friends, nor Summer to the dead!
I miss them at the calm of eve, or sunny hour of noon;
Nor morning songs awake the dead, in the flowery month of June!

ROBERT GILFILLAN.

SONG OF THE WORM.

The Worm—the rich Worm has a noble demain
In the field that is stored with its millions of slain;
The charnel-grounds widen, to me they belong,
With the vaults of the sepulchre sculptured and strong.
The tower of ages in fragments is laid,
Moss grows on the stones, and I lurk in its shade;
And the hand of the giant and heart of the brave
Must turn weak and submit to the Worm and the grave.

Daughters of earth, if I happen to meet
Your bloom-plucking fingers and sod-treading feet—
Oh! turn not away with the shriek of disgust,
From the thing you must mate with in darkness and dust.
Your eyes may be flashing in pleasure and pride,
'Neath the crown of a queen or the wreath of a bride,—
Your lips may be fresh and your cheeks may be fair—
Let a few years pass over, and I shall be there!

Cities of splendour, where palace and gate,—
Where the marble of strength and the purple of state,—
Where the mart and arena, the Olive and Vine,
Once flourish'd in glory, oh! are ye not mine?
Go, look for famed Carthage, and I shall be found
In the desolate ruin and weed-covered mound;
And the slime of my trailing discovers my home
'Mid the pillars of Tyre and the temples of Rome.

I am sacredly shelter'd and daintily fed,
Where the velvet bedecks and the white lawn is spread;
I may feast undisturbed—I may dwell and carouse
On the sweetest of lips and the smoothest of brows.
The voice of the sexton—the clink of the spade—
Sound merrily under the Willow's dank shade;
They are carnival notes, and I travel with glee
To learn what the churchyard has given to me!

Oh! the Worm—the rich Worm has a noble demain,
For where monarchs are voiceless I revel and reign!
I delve at my ease and regale where I may,
None dispute with the Earth Worm his will or his way.
The high and the bright for my feasting must fall—
Youth, beauty, and manhood—I prey on ye all.
The prince and the peasant, the despot and slave,
All—all must bow down to the Worm and the grave!

ELIZA COOK.

CHAPTER OF MISCELLANIES.

ZOOLOGY.

THE DIPPER ON THE YORKSHIRE COAST.—Any one desirous of an opportunity of noticing the peculiar habits of this brisk little fellow—so ably described by various authors—may visit that sweet and romantic place Haiburn-Wyke, contiguous to the sea-coast, a few miles North of this town. The Dipper is also found in Scalby-Beck. I possess specimens from both places.—PATRICK HAWKRIDGE, *Scarborough, Aug.* 7, 1837.

COURAGE OF THE MISSEL THRUSH.—It is well known to ornithologists, that the Jay frequently plunders the nests of other birds, both of eggs and young birds. It is, accordingly, viewed with an exceeding jealous eye by the feathered tribe in the Spring and Summer months. We have repeatedly seen the Missel Thrush fiercely attack and expel the Jay from a tree where the former has built its nest,

the thief slinking away to another tree, screaming pitifully, and pursued a considerable way by the enraged Thrush. During the present year we noticed a Jay driven from a Hawthorn-bush by a small Finch, but could not distinguish the species on account of the distance. On another occasion, at four o'clock on the morning of July 4, of the present year, a Missel Thrush was seen pursuing a Carrion Crow (likewise an egg-destroyer) through the air; but the dusky rogue appeared to take the matter much more coolly than the poor cowardly Jays.—Ed.

Aporus bicolor.—Mr. Shuckard mentions this insect as a variety. I have a pair which I took on Parley Heath about twelve years ago; and I believe I took last year *A. unicolor*, which would appear from his work to be doubtful as British. If not *unicolor*, perhaps it is a black variety of the former.—J. C. Dale, *Glanville's-Wootton, Dorsetshire, June* 9, 1837.

Change of Colour in the Common Fowl.—It will be recollected by many of our readers, that we mentioned, last year, a cock and hen belonging to Mr. Martin, of Londesbro', near Market-Weighton. We have this week seen the male bird, who has again changed the colour of his coat, and is now a most beautiful yellow and white. It was first black, then fine light brown, afterwards black and white, then pure white, and is now yellow and white. The hen has not this year altered much, but is evidently changing to yellow. They are brother and sister, and of the pure game kind.—*Yorkshireman, July* 6, 1839.—[The colour of the hair in Man is known to change in consequence of violent excitement of the passions, and a similar cause has the same effect on the coverings of the lower animals. We have known a game cock—a celebrated fighter—change colour several times in the course of a few years, being sometimes white, and then of the usual colour in this variety of the fowl.—Ed. *Nat.*]

Flight of Birds.—Mr. Cartwright, who lived in a desolate region, computed the rate at which certain wild Ducks flew to be ninety miles an hour. The celebrated Spallanzani found, by experience, that a Swallow flew from Bologna to Modena, a distance of twenty miles; in thirteen minutes; and he affirms that the Common Swift can fly sixty miles in half an hour.

A Sportsman's Warning.—Permit an old sportsman to recommend all game-keepers and gentlemen who are fond of field sports, to be on the alert, as young Pheasants and Partridges are just coming out of their nests; let our friends get their ammunition in order, and destroy all Kites, Hawks, Crows, Magpies, and Jays—birds of prey are all ready to pounce upon them and carry them off. I have seen Crows as well as Hawks carry the young birds away in their claws.—J. E. W., *Western Times, June* 29, 1839.—[Unless J. E. W. intend to destroy the Rats, Weasels, Polecats, and other *fourfooted* "vermin," he will find but little advantage accrue from making war on the birds he mentions.—Ed. *Nat.*]

THE NATURALIST.

VOL. V., NO. XXXVI.—SEPTEMBER, 1839.

ON THE PRACTICABILITY AND ADVANTAGES OF THE CULTURE OF WHEAT WITHIN THE TROPICS, AND MORE ESPECIALLY IN THE BRITISH SETTLEMENTS IN THE WEST-INDIES.

By William Hamilton, M.B.

The following details, though satisfactory in some respects, are unfortunately deficient in that minuteness of detail which is requisite for a correct calculation of results. We must, therefore, be contented with such an approximation to the truth as can be gleaned from the scanty materials before us. The first and most important fact which arrests the attention of the reader, is the wide difference of habit between the Wheat imported direct from England, and that which had been acclimated within the Tropics for about three centuries: a difference the more remarkable, and the more difficult of explanation, from the difference between the results in this case, and that recorded in the *Life of Columbus*, in which, although the notice is silent on the subject, the experiment may be presumed to have been made with Wheat either directly brought from Spain, or which had, at the most, been under cultivation within the Tropics for too short a period to have had its habits much altered by the influence of climate. From the observation subjoined to the notice of the English white Wheat sown by the governor, we may conclude that the fourteen grains sown produced stalks, but from over-luxuriance of vegetation expended the whole of their vigour in the production of leaves: while that planted by Mr. Storr failed altogether. The time of planting was nearly twelve weeks earlier than that selected by the Spanish husbandman on the North coast of San-Domingo, whose seed was sown, as Washington Irving acquaints us, "in the latter end of January." Hence it might, perhaps, be worth while to vary the experiment by planting European seed about the same time, and noting the results. The red Wheat equally failed, probably from a similar cause; but from Mr. Storr's account promised, by spreading over the surface, to be valuable as pasturage for cattle, if not as food for Man. But the failure of the European is more than compensated by the results obtained from the Victoria Wheat; which results were the same, whether the seed was the immediate growth of the vallies of Aragua, or the produce of

such seed sown and reaped in England: the tillering in both cases being alike; and although the return, as stated in the last notice, falls considerably short of what Mr. STORR's sanguine expectations led him to anticipate, it has been such as to gratify the most extravagant desires, and more than bear HUMBOLDT out in his statement, that "it is an *error* that generally prevails under the Tropics to consider grain as plants which *degenerate in advancing* towards the Equator, and to believe that the harvests are *more abundant* in the Northern climates." In New-Providence, within 25 degrees of the line, we find, in the governor's garden, *sixty-two* ears produced by six grains; and, taking the produce at sixty-five grains to each ear, the average given by Mr. STORR's latest notice, we shall have a total return of *four thousand and thirty* grains from *six*, or 671.675 for *one*—a return far exceeding even that obtained in the fertile vallies of Aragua, where, as HUMBOLDT informs us, in February, 1800, "a harvest of *twenty* for *one* was expected: and, as if the produce were but moderate, I was asked whether corn produced *more* in Prussia and Poland?"

This falls far short, however, of the average of the return obtained by Mr. STORR, who found each grain to yield from *fifty* to *sixty* ears, each containing from *sixty* to *seventy* grains. These results give an average of *fifty-five ears* from each grain, and *sixty-five grains* to each ear; being an average return of no less than *trehe thousand five hundred and seventy-five* for *one*.

With respect to the climate, soil, and elevation of the spot on which these experiments were made, Mr. LEES, in a letter from Nassau, New-Providence, of the date of the 8th of August, 1836, furnishes the following valuable information:—"The average height of the thermometer is, in the Summer months, say from May to October, about 87°, scarcely varying two or three degrees either way: it may be two degrees lower at night: and we have *no high land* at all here: *where the Wheat is grown is not more than four feet above the sea level.* The soil is of three kinds. *A red soil* composed of decayed wood and other vegetable matter, which at first is exceeding fertile, and is the best land for Pine-apples; but, when exposed, is very soon exhausted; and, indeed, in dry weather is so very fine and light that it soon entirely blows away, leaving the bare rock, which is *every where* in these islands from *six inches* to *two feet* under the stratum of soil. There is a *black vegetable mould* of the above nature, but *not so fertile;* and there is a soil (by far the most abundant) composed of *pulverized Madrepore rock* and *minute fragment of sea shells*, interspersed with either or with both of the above vegetable moulds: this of course may be much improved by adding animal manure to it. It was in the latter, *so improved with animal manure*, that the Wheat* I now send was grown. The sea sand consists entirely of pulverized

* Nineteen grains of this Wheat, which yet remain in my possession, weighed on trial ten troy rains; being at the rate of 144 grains to the troy drachm.

shells, with the exception of some curious sand composed of round or oval particles (a specimen of which I take this opportunity of sending to you). We suffer much in certain seasons from the want of rain. In the months of May and September it falls in torrents, washing the soil from all slopes and declivities, and thus doing much injury: but after the rains cease, the stratum of soil is *so thin*, and so little retentive of moisture, that it very shortly dries down to the very rocks, destroying almost every thing which cannot do without moisture, or which has not strength enough to send its roots downwards into the cracks and fissures of the rocks. We have no rivers or ponds of any description: all our water being obtained from wells. Artificial watering is, therefore, out of the question, except in very small gardens. From what I have stated, I think you will see that we are not very likely to do much in the agricultural way. The ground is so rocky that no where could a plough, or even a spade, be used: the hoe is the only instrument of which we can avail ourselves."

Mr. Lees' next letter, of the date of the 30th of June, 1837, after an interval of nearly twelve months, contains a less favourable account, but one for which we might, in some degree, be prepared by the facts communicated in his preceding letter. From this we learn that "Mr. Storr planted last January a quarter of an acre of Victoria Wheat for experiment, and promised to keep a journal of the various points of information you wish to obtain: but the small birds, of which there are great numbers here, ate every grain of the Wheat, *which was bearing abundantly.*" Thus the plague of the birds, as destructive for the farmer as the plague of Locusts in Egypt, deprived Mr. Storr of his anticipated harvest, and robbed us of the valuable results of his labours. This, however, was a failure in the production of which climate had no share, and which might have been equally the result of the same cause in the temperate fields of England, did not the English farmer, warned by repeated experience, know how to guard effectually against it. But in a gentleman of the name of Butler—an individual of considerable property and influence, united to a competent share of agricultural knowledge—Mr. Lees was fortunate enough to meet a more successful coadjutor, from whom he received the following favourable account of the Wheat; the more valuable from the insertion of precise dates, enabling us to follow his experiment through all its various stages:—

"My dear Sir,—Annexed you have the result of my first trial of the Victoria Wheat. I think it will yield a very large return annually, and is well worth our attention in the Bahamas. My object is to introduce it to the planters at Rum-Key (about lat. 23° 37′ N.): the success in that quarter I will hereafter communicate, and remain, &c.,

"Hon. J. C. Lees. *(Signed)* Robert Butler."

"Six hundred grains of Wheat were planted on the 31st of January, 1837, last quarter of the moon. The soil was improved by good Sheep-pen manure and sifted sand (calcareous*). Planted in drills, *rather thick*, and the seeds in the drills firmly pressed down. *It began to come up* on the 6th of February, but was not *all* up until the 18th. On the 27th of March it *began to shoot out ears*, being fifty-five days. In ninety days, the 1st of May, the whole was cut in, being completely dry, yielding nearly *a thousand ears*, containing on an average forty seeds each, in all fully *forty thousand grains*. The weather in February was cold, the thermometer was as low as 59°, March and April ranging from 70° to 80°. The period was a very dry one; hardly one-third of the plants were watered once a day."

Had the result of Mr. Butler's experiment equalled the average of Mr. Storr's, the produce of his 600 grains, the weight of which could not have greatly exceeded the 0.0488276 of an avoirdupois pound, ought to have yielded 33,000.8 ears containing 2,145,050 grains, weighing, at the rate of 15,867 grains to the avoirdupois pound of 7000 grains, 135,195 pounds; while the actual return obtained did not amount to what might have been expected from 181 or 182 grains; they had been planted sufficiently apart, and in a soil sufficiently rich to admit of their tillering to a reasonable extent. The prevalence of a very dry season also operated powerfully against the crop, and no doubt prevented the harvest from reaching to anything like its attainable limits. Mr. Butler, however, so far from being disheartened or disappointed by these results, expresses it as his opinion that it is capable of yielding a very large return annually. Taking the average of Mr. Storr's experiments at 55 tillers from every grain, and 65 grains of Wheat from each tiller, and allowing two grains of seed to each hole, with a clear interval of twelve inches between each hole, a British statute acre will take 87,120 grains of Wheat, weighing, at 136 grains to the troy drachm of 60 grains, 5.49075 lbs, or about 5½ lbs, the return from which, at the average rate of increase assumed above, should be, 4,791,600 tillers, yielding 311,454,000 grains, and weighing, at 15.867 grains to the pound avoirdupois, 19,629.5. or 19,629½ lbs, which is above 3,566 times the weight of the original seed; while had double the quantity of seed named been employed, the amount of return would most probably not have been greater, if so great, from the increasing closeness of the plants preventing a due development of the tillers.

* "Lime," as Colonel Le Couteur very justly observes, "is one of the most indispensable manures for Wheat, imparting more whiteness to straw, and more fullness and weight to the grain than any other: it moreover attracts humidity from the atmosphere, and thus nourishes the roots. Hence the advantage of the *calcareous* sand mixed with Mr. Butler's dressing may be easily understood."

Besides thus obtaining a trial of the Wheat in Jamaica and New-Providence, I endeavoured to call the attention of the Governors of Barbadoes and the Leeward Islands—Sir Lionel Smith and Sir E. J. Murray Macgregor—to this important subject, sending them supplies of Victoria Wheat, and copies of the paper which I published on the subject in the *West-of-England Journal*, in which were detailed the results of the Jamaica experiments. This was in the months of October and December 1835, since which not the slightest acknowledgment of my letters or parcels has reached me.

In 1837, I gave, in an abridged form, an account of the experiments tried in Jamaica, with those subsequently made in New-Providence under the auspices of the then governor, Sir W. M. G. Colebrooke, and my indefatigable friend Mr. Lees, the Attorney-General, in the sixth volume of the *Penny Magazine*. From this abstract I may perhaps be pardoned for introducing here the closing remarks, some of which have indeed been partially anticipated in the preceding pages.

" The island of New-Providence, in which these experiments were made, like all the rest of the countless islands of various magnitudes which stud the ocean for a space of more than five degrees of latitude and as many of longitude, to the North of Cuba and Häiti, is utterly destitute of high land, and the level at which the Wheat was raised does not exceed the altitude of four feet above the ocean. The mean temperature* of the Summer months, from May to October, is about 87 degrees of Fahrenheit, the entire range hardly ever exceeding two or three degrees; while the atmospheric pressure varies in general so little, that a barometer is regarded as an unnecessary instrument in so equable a climate. The soil is of two descriptions, neither of them possessing a depth of more than two feet, in general, above the sub-stratum of Coral-rock upon which it rests. One of these, celebrated for the fine and highly-prized Pine-apples which it produces, is of a red colour, and is formed chiefly of decayed vegetable matter, which, although of singular fertility during the rainy season, becomes soon exhausted by exposure to the sun and wind, and in dry weather is so very fine and light, as to be frequently dissipated entirely by the action of the wind, leaving the rocky basis of the island naked and exposed. The other, a black vegetable mould, somewhat resembling the former, is, however, much inferior in point of fertility: it was in this soil the Wheat was raised. Intermingled with both these, is a quantity of minutely-pulverized Madrepores, and other Corallines, sea shells, &c.,

* It is less the mean distribution of heat throughout the entire year than its mean distribution throughout each individual month that influences vegetation: and we are taught by Humboldt that three points of importance require to be taken into consideration in the culture of useful plants, namely, the mean temperature of the entire Summer, with that of the hottest and also that of the coldest month.

which contribute little, if at all, to its fertility. Such a soil cannot be expected to be very retentive of moisture, and hence it cannot be a matter of surprise that much injury is frequently sustained from the want of rain. During the months of May and September, indeed, the rain descends in such impetuous torrents, as to do scarcely less injury than the intermediate drought, carrying away the loose and yielding soil from every declivity with a force less capable of resistance than that, even, of arid winds. On the cessation of the rains, the moisture rapidly exhales through the effects of evaporation, or is absorbed by the porous rock beneath, and every thing of a vegetable nature, which is unable to subsist without moisture, or penetrate with its roots the pores and fissures of the subjacent rock, speedily perishes. Rivers of course cannot be looked for under such circumstances, and artificial irrigation is out of the question. It was, however, under circumstances thus unfavourable, with a temperature little, if at all, varying from that of islands more than ten degrees nearer to the line, and at a level little exceeding that of the ocean, that the important results just detailed were obtained; and we are hence justified in concluding, that the results would be the same at the same level, but in a more congenial soil, in Antigua, Barbadoes, Nevis, St. Kitts, and the other islands, were the experiments tried with *equal fairness*, and *the season for sowing selected with judgment.* The advantage of securing an internal supply of so essential an article of human subsistence, not only to the population of the islands themselves, but even to the inhabitants of Britain in seasons of scarcity, connot fail to strike the most unobservant."

The removal of Sir WILLIAM COLEBROOKE from the government of Bahama to that of the Leeward Islands, presented too favourable an opportunity to be disregarded, of extending my experiments to those islands. I had, indeed, previously made attempts to interest private individuals in investigations of this nature, but without success, although I distributed supplies of seed for the purpose to individuals both in Antigua and Barbuda, and also sent a quantity to St. Kitts by an officer who had received an appointment there. Sir WILLIAM COLEBROOKE exerted himself with his accustomed zeal in seconding my efforts; and, as he informed me in a letter of the date of the 14th of August, 1838, not only addressed the Presidents in all the islands, and gave them the directions required, but published them also in the *Gazette;* the only result, however, which had reached him up to that date had been "a small sheaf which Dr. NUGENT gave me yesterday, and which I herewith forward, and I understand that Colonel BYAM has also raised some;" he promises also to use his endeavours to obtain the notes of their experiments.

The sample of Wheat raised by Dr. NUGENT reached me in due course; and although serving to demonstrate the fact of Wheat being capable of producing ears in the islands of Antigua as well as in Jamaica and New-Providence, it was

by no means of such a quality as the results of the trials in the two last islands had led me to expect, the grain being inferior, in the number contained in the ear, as well as in bulk and weight, to the original seed; but in the absence of all details, no opinion can be formed as to the causes of this degeneracy.

In point of climate, that of New-Providence, notwithstanding its being nine degrees removed from the line, cannot, in any very material degree, differ from that of Antigua, since, if we assume, with HUMBOLDT, the mean temperature of October, as representing with tolerable accuracy that of the entire year, we shall have from 78 to 79 for the mean annual temperature of New-Providence; which differs by from two to three degrees only from the mean temperature of October, for the latitude of 17. Mr. BUTLER, in the notes of his experiment, states that the temperature, in the month of February, the first of the growth of the Wheat, descended as low as 59, which, at that early stage, could have had little more effect than to retard its progress some few days, since we find the whole of the quantity planted did not make its appearance above ground before the 18th, or on the 19th day after it was put into the ground; while the ears did not commence forming for 37 days more, being 55 from the day of sowing; in which, and the succeeding month, the temperature ranged from 70 to 80,* to which months, for the latitude of Antigua, KIRWAN assigns the mean temperatures of 78.5 and 79.4. Hence we can hardly attribute any great influence to the effect of climate, since, during the period occupied in the formation of the ears and the filling of the grain, the extreme difference of temperature could hardly have amounted to five degrees. The season of Mr. BUTLER's experiment, as we learn from his report, was by no means favourable, being very dry, while the peculiar circumstances of the Bahama islands put artificial irrigation wholly out of the question. The soil we may presume to have been similar to that described by Mr. LEES as the subject of Mr. STORR's experiments, consisting of "pulverized Madrepore rock, and minute fragments of sea shells;" this, however, was improved by Mr. BUTLER, by a dressing of good Sheep-pen manure, mixed with calcareous sand, a

* We shall presently see, from Mr. GILBERT's table of the mean temperature of each of the four months occupied with his experiments (and which, with the exception of August, are the hottest of the year), that this range varies but little from the mean temperature of those *hot* months in Antigua, which from that table appears to be 77.7, while the mean of Mr. BUTLER's extremes gives 75. The mean annual temperature of the Antilles, according to HUMBOLDT, is 81.5; of Cumanà (lat. 10° 27. 52.), 81.26. and at Vera-Cruz and the Havanna, 78.08. The following table exhibits, according to the same author, the mean temperature of the two coldest and two hottest months:

	Coldest.		Hottest.		Diff. bet. hottest & coldest.
	Dec.	Jan.	July	Aug.	
Havanna, lat. 23° 8.	71.78	70.16	83.11	83.54	13.38

preparation to which much of the success may be attributed. The period of the moon's revolution also exercised considerable influence, the grain having been planted on the 24th day of her age, or within four days of the change; a circumstance of considerable importance as we approach the Equator, where the phases of the moon exercise so marked and powerful an influence over the progress of vegetation. In the experiments conducted under the authority of Dr. BANCROFT, in Jamaica, notwithstanding the want of precise dates in his report, the period of sowing must have corresponded nearly with the period of change; although the January sowing must have taken place in the last, and the March sowing in the first quarter of the moon.

The want of information respecting the details of Dr. NUGENT's experiments, is, in some degree, supplied by the memoranda kindly furnished by the Rev. Mr. GILBERT, an intelligent proprietor of Antigua, to Sir WILLIAM COLEBROOKE, of which the following is a transcript.

"Memoranda of an experiment on the growth of the Victoria Wheat."

"On the 1st of April, 1838, a spot of virgin soil, in which a single crop of the Sweet Potatoe had been raised, was planted with some of the Victoria Wheat sent by Dr. HAMILTON to his Excellency Sir WILLIAM COLEBROOKE.

"The soil was of medium quality, and the seed was planted by the dibble in holes one foot apart, and at the distance of one foot each in the row.* Two grains were deposited in each hole, and 250 holes (or about one hundred and seventy-fourth of an acre) were thus planted. The crop had two or three occasional weedings, and was reaped (owing to its ripening unequally) at successive periods, in the end of July.†

"The weather, *during the whole time of the experiment*, was more than usually favourable, and although the ripening of the grain was somewhat retarded by the rains which fell in July, yet it did not appear to have sustained any injury on that account. An abstract of the rain and temperature is subjoined.

	April	May	June	July
Rain in Inches	3.05	8.32	5.68	8.80
Mean temperature	76.7	77.2	78.6	78.3

"The height of the plants, when ripe, was about two feet, and the produce,

* No mention is made here of any kind of dressing; although it must be obvious to any person acquainted with Antigua, that in no part of that island is the soil rich enough for the production of Wheat without manure.

† This gives a mean interval of little less than one hundred and twenty days, or about thirty more than in either Jamaica or New-Providence, between the times of sowing and reaping.

with five or six inches of straw attached to each ear, weighed four pounds and a half. The clear grain weighed about 20½ ounces avoirdupois.

"In order to institute a comparison between this and English Wheat, a measure of the best English Wheat, lately received from Whitehaven, and an equal measure of the Victoria Wheat, were weighed, and their relation to each other was found to be as 131 to 108; consequently, supposing the English Wheat to weigh 60 lbs. per bushel (which is the usual weight), a bushel of Victoria Wheat would weigh 49½ lbs.; hence it appears that the produce of an acre of the Victoria Wheat would, under similar circumstances, amount, as nearly as possible, to 5½ Winchester bushels. The grain is small, hard, and shrivelled, and the only use to which it appears to be applicable, beside the feeding of stock, is the manufacture of maccaroni and vermicelli. For the purpose of ascertaining the truth of this supposition, equal quantities of flour, of the Victoria and English Wheat, were subjected to the necessary operation for separating the gluten, which was at once perceived to be extremely abundant in the former sample, and, on being weighed, was found to exceed that of the English Wheat, in the proportion of 2.5 to 1. The bran also is very abundant, and exceeds that of the English Wheat in about the same proportion as the gluten. Samples of the ears, grain, flour, and bran, of the Victoria Wheat, are forwarded with these memoranda for inspection and examination. A sample of English Wheat is also inclosed for the purpose of affording a comparison."

Plymouth, July 20, 1839.

AN OUTLINE OF THE COMPARATIVE STRUCTURE OF THE ORGANS OF LOCOMOTION IN RADIATED ANIMALS.

By Thomas Wright, M.R.C.S.

The true *Radiata* comprises those primary types of the animal kingdom, whose essential characters consist, in having their component parts disposed around a central body, and their *nervous system* in form of a simple gangliated cord encircling the entrance to the digestive organs. Some are provided with simple eyes, in others they are absent. The *skeleton* presents many phases of development, and in the higher classes is extremely complicated; in them we discover the first traces of a fibrous *muscular system*. The *digestive organs* vary considerably in the different organs of each class. In many we observe a system of vessels ramified through the body, in which the nutritive fluid slowly moves; *respiration* is performed either by the introduction of water into the interior of

their bodies, or into separate spaces, or ramified organs, destined for this important function. The sexes are united in the same individual, and in the highest class a perfect hermaphrodism exists. Cuvier used the term *Radiata* to indicate the stellular arrangement of their external parts and internal organs, whilst the circular disposition of their nervous system around the entrance to their stomach, induced Professor Grant to propose the term *Cyclo-neura* for this sub-kingdom, which he limits to the following classes :—

Sub-kingdom Radiata vel Cyclo-neura, divisible from the structure of their cutaneous system into those with

- *The Skin* soft, transparent, or gelatinous.
  - Class I. Zoanthida. — Animal floriform, fixed or free, capable of moving by the action of a terminal sucker; digestive sac with a single opening, and surrounded by a circle of coloured tubular tentacula.
  - Class II. Arachnoderma. — Animals with a simple gelatinous structure, organised for floating through the ocean by membranous sacs or vibratile ciliæ; body secreting an irritating fluid, which produces urtication by contact with the skin.
- *The Skin* coriaceous or crustaceous, and armed with spines.
  - Class III. Echinoderma. — Animals of an extremely complicated structure, for the most part free, ambulatory, and predaceous, provided with a highly organized integument, and having a skeleton of many thousand pieces; they are furnished with tubular feet for walking, or prehension, with a distinct vascular system; and some have visual organs.

The *Zoanthida* form the passage from *Zoophyta* to *Radiata*. They have a cylindrical fleshy body, truncated at both extremities; the posterior or inferior serves in some genera as an organ of attachment to submarine bodies, whilst in others it is converted into a muscular disc for locomotion; the anterior or superior extremity of the fleshy body develops numerous tubular, simple, or ramose tentacula, often adorned with the most vivid colours, and disposed in one or

more rows around the mouth, like the metals of a compound flower, from which resemblance this class has been long known as Animal-flowers and Sea-anemones. The numerous species that inhabit our shores afford the student ample opportunities for investigating this elaborate structure, and studying their singular habits. When observed expanded in their native haunts, they present an interesting spectacle to the admirer of Nature. Sometimes they are seen suspended from the vaults of submarine caves, or adorning the perpendicular sides of rocks with a gorgeous floriform tapestry: other species fr quent the sandy beach, and seek a temporary shelter from any threatened danger amongst the particles of their silicious abode; whilst wandering along the rocky beach, other beautiful forms of *Actinidæ* (*A. equina*) may be seen enjoying the vivifying influence of the solar rays at the bottom of the shallow pools of water left by the ebbing tide, where they ornament the rocks like so many flowers with their chaste and beautiful colours. These interesting beings are infinitely sensible to light and to meteoric influences in general, and expand and contract their tentacules in proportion as the state of weather is congenial or otherwise to their feelings, the shadow of a passing cloud, or the slightest undulation of the water, is sufficient to cause them to withdraw their tentacules, contract their bodies, and remain like an inanimate mass until the menaced danger has passed.

The exquisite sensibility manifested by these simple beings induced the Abbé Dicquemare to believe that the expansion of the tentacula of *Actiniæ* was a more certain indication of fine weather than even the rising of the barometer. The *Zoanthida* are destitute of any solid organ of support, but the cutaneous system is distinctly developed, and intimately united to the subcutaneous muscular tissue, which conjointly form the resisting walls of their cylindrical bodies. The dermis is impregnated with a pigment of the most brilliant hues, as blue, red, green, yellow, &c., and from the numerous pores upon its surface an abundant viscous secretion exudes, which has the property of exciting a slight degree of inflammation in the skin, when brought into contact with it. This poisonous fluid may serve for destroying the victims of these predaceous animals when seized in the tenacious grasp of their numerous tentacula. These prehensile organs are tubular prolongations of the musculo-cutaneous integument, and are the media by which the respiratory chambers, situated between the walls of the stomach and the tegumentary membrane, communicate with the water; each tentaculum is a conical tube, the base of which opens into the space just described, whilst the free apex terminates in a small orifice surrounded by a sphincter muscle, through which the water is admitted into or ejected from the respiratory chambers. The membrane lining these spaces is copiously supplied with vibratile ciliæ, the incessant action of which induces currents of water to meander over its surface. The faculty these animals possess of distending their

bodies with fluid, depends upon the tubular structure of their tentacula; and their protrusion to a greater or less extent, is regulated by the quantity of water injected from the respiratory chamber into the tentacular tube. In most of the *Actiniæ* that inhabit our shores, the tentacula are simple conical tubes; but in some Tropical species, as *Actinia alcyonidea*, *A. arborea*, of the South Pacific, the body is about a foot in height, and the sixteen tentacula radiate to the distance of six inches from the oral disc, and have their surface tuberculated with ramified club-shaped expansions, and armed with numerous pedunculated suckers. With these musculo-sensitive prehensile instruments, abundantly coated with a poisonous tenacious mucous, these gigantic *Actiniæ* perceive, seize, and retain in their grasp molluscs, crustacea, and fishes much larger than their own bodies. The muscular fibre forms a distinct system in this class, and its intimate union with the tegumentary membrane enables them to assume at pleasure the varied forms for which they are remarkable. Beneath the coriaceous skin we observe a plane of longitudinal fibres, intimately united with it, and which converge inferiorly to form the disc, by which these floriform beings attach themselves to the rocks.

In a large errant species from the shores of the Mediterranean, Meckel found a second layer of muscular fibres, situated internally to the preceding, that took a transverse direction, and were loosely united to them. The striæ seen on the surface of the bodies of *Zoanthidæ* arise from the contraction of the muscular tunics, which corrugate the irritable integument, and thus give it an annulated and longitudinally contracted air. So perfect a development of the muscular system as that just described necessitates the existence of a regulating power by which the movement produced by the contractile fibres may be subjected to the control and direction of the will. Long ago Spix, in his minute dissections of *Actiniæ*, observed nodulated filaments among the muscular fibres of the pedal suckers, which he figured and described as the nervous system, consisting of a circular cord with three pairs of ganglia developed at equal intervals apart; from each a lash of six filaments branches off to supply the walls of the muscular sac. Later observers, however, have not been equally successful in detecting this arrangement; and indeed, were such found to be the case, it would in some measure be at variance with the general law that appears to regulate the disposition of the nervous system in other cyclo-neurose classes. Some years ago, when dissecting *Actinia equina*, he observed a cord lying embedded in the muscular fibres of the oral sphincter, and took a circular course around the base of the purple-coloured tentacula: this he regarded as the circular nervous system of the animal. This filament has been likewise recently seen by Professor Jones, who says,—"It is more probable that the nervous system consists of a delicate thread, which we are pretty well convinced we have detected running round the

roots of the tentacula, embedded in a strong circular band of muscular fibres which surround the orifice of the stomach, and act the part of a powerful sphincter in closing the aperture." Professor GRANT adopts the description of SPIX, without stating whether he has verified by his own dissections the description of the Bavarian naturalist. The question, therefore, appears to be an "open" one, and it is to be hoped that individuals favourably located for studying this interesting class of animals will turn their attention to the subject.

The ocean of every clime swarms with innumerable forms of *Arachnoderma*, varying in size from microscopic atoms, like the *Polygastrica*, to those large masses of Sea-jelly (*Medusa*) that are left on every shore by the receding tide. In the stillness of night the mariner's solitary path through the trackless deep is oft illuminated by the phosphorical light emitted by these simple beings, some resembling an undulating plume, whilst others bespangle the vessel's track with luminous spots, or convert the entire surface of the deep into a sheet of pale light. When we attempt to unravel the mechanism by which these wonderful phenomena are produced, we find to our astonishment that these beings are composed of little else than a mass of cellular tissue, which when taken from the water rapidly gives off by evaporation the fluid contained in its interstices, and leaves behind only a few shreds of dried membrane, which, from an animal weighing when alive a few pounds, will scarcely amount to as many grains—so true is the remark made by the industrious PERON, when speaking of the *Medusæ*:—"Among the animals of this family, we find the most important functions of life performed in bodies which offer to the eye little more than a mass of jelly. They grow frequently to a large size, so as to measure many feet in diameter; and yet we cannot always determine which are their organs of nutrition. They move with rapidity, and continue the motion for a long time; and yet we cannot always satisfactorily demonstrate their muscular system. Their secretions are frequently very abundant, yet still the secerning organs remain to be discovered. They seem too weak to seize any vigorous animal, and yet fishes often constitute their prey. Their delicate stomachs appear to the observer incapable of digesting such aliment, but it is nevertheless dissolved in a very short space of time. Most of them shine with great brilliancy by night, and yet we know little or nothing of the agent that produces so remarkable a phenomenon, or of the organs by which the luminous matter is elaborated. And, lastly, many of them sting the hand that touches them, but how or by what means they do so still remains a mystery."

This eloquent description of the *Acalephæ* will suffice to shew that the study of the peculiar nature of the tissues of this class, the singular disposition of their organs, and the anomalous character of the functions they perform, opens as wide

a field for the inquiries of the physiologist, as the elegance, wonderful variety, and splendid colouring of their forms present to the admiration of the zoologist.

Nuneham House, Cheltenham,
July 8, 1839.

ON THE HABITS AND PECULIARITIES OF BRITISH PLANTS, AND ON THE DERIVATIONS OF THEIR LATIN NAMES.

By T. B. Hall.

(Continued from p. 82.)

Corallorhiza.—From κοραλλιον, coral, and ριζα, a root, from the curious structure of the root.

Corallorhiza innata, Spurless Coral-root.—The root, when beginning to dry, exhales the sweet and powerful scent of Vanilla, which is not entirely lost after the specimens have been preserved for twenty years.

Coriandrum.—Κοριανδρον, from κορη, a pupil, and ανηρ, a man, because of its roundness, like the pupil of a man's eye. According to Dr. Withering, from Κορις, a Bug, the leaves when bruised smelling like that insect.

Coriandrum sativum, Common Coriander.—The leaves have a very strong and disagreeable scent, but in some countries they are used in soups and salads. The seeds are grateful to the taste, and, incrusted with sugar, are sold by the confectioners under the name of coriander comfits. The seeds are employed by rectifiers of spirits for cordial drinks, and by brewers, both in England and Holland, to flavour their strongest beer.

Cornus.—From *cornu*, a horn; as applicable to the hard compact texture of the wood.

Cornus sanguinea, Dogwood Hound's-berry (as denoting fruit of an inferior quality), Prickwood (from its use in making skewers), Gatten-tree, Bloody-twig, Wild Cornel-tree.—The flowers are not very showy; but the variety of red, yellow, and umber tints which the foliage affords in the Autumn, and the beautiful red colour of the young branches during the Winter months, fully compensate for any want of splendour in its blossoms. The berries are bitter and styptic; they dye purple; and the fleshy part of them abounds in oil, which in many parts of the Continent is extracted by boiling and pressure, both for burning and for table use. The wood is hard, and is made use of for cart timber and rustic instruments, for mill-cogs, spokes, lace-bobbings, butchers' skewers,

and tooth-picks. It also affords one of the best charcoals for the manufacture of gunpowder.

Cornus Suecica, Dwarf Cornel.—The berries of this pretty little plant are eaten by the Highlanders to improve appetite; hence the name "Plant of Gluttony." In the Arctic regions Bears fatten on these berries, whence they are called by the Crees "*Musqua muna.*"

Coronopus.—Κορωνοπες, from Κορωνη, a Crow, and πες, a foot, from the supposed resemblance of its leaves.

Corrigiola.—From *corrigia*, a strap or thong; to which the leaves may be imagined to bear a slight resemblance.

Corydalis.—Κορυδαλις, the Greek name for the Fumitory, from κορυς, a helmet or hat, from the fancied resemblance of the flowers.

Corydalis solida, Solid-rooted Corydalis, Solid Bulbous Fumitory.—This is a pretty species, and merits a place in the flower-garden. It will grow in almost any soil or situation, and will thrive even under the shade of trees, provided the ground be not too dry. It is a native of most parts of Europe; and also of Tauria and Siberia, under hedges and in woods in rather humid places. The roots abound in fecula, and are resorted to by the Kalmucs in Winter as food.

Corylus.—Κορυλος, from κορυς, a casque, or cap: the fruit, with its involucre, appearing as if covered with a bonnet.

Corylus Avellana, Hazelnut-tree.—It is frequently planted in hedges and coppices, to make charcoal for forges. The wood is used for fishing-rods, walking-sticks, crates, hoops for barrels, &c.; the shoots for springles to fasten down thatch. In Surrey, Kent, and other Southern counties, where numerous flocks of Sheep are kept, the Hazel alone supplies the farmer with folding-hurdles. The roots are preferred where beautiful wood is required for inlaying or staining. The kernels of the fruit have a mild, farinaceous, oily taste, agreeable to most palates, though in large quantities they appear to be difficult of digestion, and have sometimes produced alarming symptoms. The nut-gathering, towards October, proves a great source of rural delight.

The specific name is derived from *Avellino*, a city of Naples, in the neighbourhood of which nuts (the round Spanish kind) are cultivated in great abundance, and to which part of Italy they were originally introduced from Pontus, and thence known to the Romans by the name of *Nux Pontica*, till afterwards changed to *Nux Avellana.*

Cotoneaster.—From Κυδωνιον, the Quince.

Cotoneaster vulgaris, Dwarf Quince-leaved Medlar.—The roots of this shrub running very deep in the earth, it has been recommended by Linnæus for making low hedges, in dry broken ground: but Sir W. J. Hooker states that it is liable to be browsed by Sheep.

Cotyledon.—Κοτυληδων, from κοτυλη, a cavity; so called by DIOSCORIDES and PLINY, because its leaf is of a hollow and somewhat semi-orbicular form.

Crambe.—From κραμβος, dry, arid; because it usually grows in sandy or dry soils.

Crambe maritima, Sea Colewort, Cliff or Sea Kale.—The country people in the West of England have been, from time immemorial, in the practice of watching when the shoots and leaf-stalks begin to push up the sand and gravel in March and April, when they cut them off under ground, as is done in gathering Asparagus, and boil them as greens. It is now frequently cultivated in gardens, and blanched, and may readily be preserved from the severest cold by a covering of sand, or an inverted garden-pot, with litter. By forcing, it may be supplied for the table from November till May; and proves an excellent substitute for Asparagus; also a useful ingredient for soups.

Cratægus.—Κραταιγος, from κρατος, strength; in allusion to the extreme hardness of the wood.

Cratægus oxyacantha, Hawthorn, White-thorn, May.—Few of our native plants present a more beautiful sight than a well-grown bush of Hawthorn, with its dense masses of white and fragrant flowers, backed by the shining dark green leaves. It is a most valuable plant for forming impenetrable, close, durable, and easily-raised fences, called quickset hedges, and it bears clipping to any extent. The timber of such plants as grow singly, and attain a tolerable size, is valued by the millwright and turner, and the roots by the cabinet-maker. A decoction of the bark yields a yellow dye, and with Copperas is used to dye black. The fruit or haws afford abundant food for small birds in hard Winters, when little else is to be obtained. There are several varieties cultivated in gardens, the most remarkable of which is the Glastonbury Thorn, which frequently blows twice a year, in May, and again in December or January. There is a tradition of this variety having sprung from the staff of JOSEPH of Arimathea, who, with his missionary companions, resolved there (at Glastonbury) to found the first Christian church in this land, stuck it into the ground, when it quickly put forth branches and blossoms. When old, the Hawthorn frequently becomes nearly covered with Mosses and Lichens, especially the grey Lichens. Such a Thorn WORDSWORTH has beautifully described with his usual simplicity.

Crepis.—From κρεπις, a shoe; the blossom bearing some resemblance to the form of a slipper.

Crithmum.—Κριφμον, from κρινω, to secrete, from its supposed virtues; or from Κριθη, Barley: the seeds somewhat resemble that grain.

Crithmum maritimum, Rock Samphire, Sea Samphire.—It is detersive in quality, warm and aromatic in flavour, and is much sought after for pickling, sometimes at the risk of human life (men being suspended from the rocks by

ropes), though other plants procurable at less hazard, as *Salicornia* and *Aster*, are frequently substituted. It is, likewise, eaten raw as a salad.

Crocus.—From κροκη, a thread; from the conspicuous filaments of the stamens; or, according to fabulous history, from the youth Crocus, who was consumed by an ardent passion for Smilax, and metamorphosed into this flaming flower—

"*Et Crocon in parvos versum cum Smilace flores prætereo.*"
Ov. *Met., lib.* 4.

Crocus sativus, Common or Autumnal Saffron, Saffron Crocus.—The summit of the pistils (*Stigmata Croci*, *Pharm. Lond.*, sometimes called chives), carefully collected and moderately dried, are the Saffron of the shops. It affords a beautiful colour to water, wine, or spirit, and gives out the whole of its virtues to either. Dryden compares the tint it communicates to the dawn of day—

"Now when the rosy morn began to rise,
And wav'd the Saffron streamer through the skies."

Cryptogramma.—From κρυπτος, covered, and γραμμα, a line; from the concealed lines of the sori.

Cryptogramma crispa, Rock Brake, Stone Fern, Crisped Fern, or Parsley Fern.—Southey calls this plant the "Mountain Parsley," an appellation which well expresses its tender habit, its delicate, lively colour, and its numerous, finely-cut, and crisped leaves. Covering large patches, as it sometimes does on the tops of rocky mountains, it adds a bright gleam of verdure and of beauty to its romantic but barren dwelling-place, and becomes an oasis of rich fertility upon the precipitous face of a sterile rock.

Cuscuta.—According to Linnæus a corruption from the Greek κασυλας, or καδυλας, which is from the Arabic *Chessuth*, or *Chasuth*.

Cuscuta Europæa, Greater Dodder, Hellweed.—The Dodder germinates in the earth, and rising above it, shoots out filiform stems, which twine around the neighbouring plants, when its original root decays. These small tubercles may be considered as absorbing warts, performing at the same time the functions of an attaching fulcrum and of a nutritient absorbing organ. By degrees the longitudinal vessels of the stalk—which appear to have accompanied the vesicles—shoot forth from the extremities, and make their way into the foster-plant, by dividing the vessels, and insinuating themselves into the tenderest part of the stalk; and so intimately are they united with it, that it is easier to break than to disengage them from it.

Cyclamen.—From κυκλος, a circle: either on account of the round form of the leaves, or of the roots. Or from κυκλαζω, to surround, on account of the spiral coilings of its leaves and stalk.

Cyclamen hederifolium, Ivy-leaved Cyclamen, or Sow-bread.—The leaves are beautifully variegated with dark and glaucous green; their under side paler and

purplish. It is a very acrid plant, especially the root, whose acrimony is not perceived at first tasting, but soon becomes intolerable.

Cynodon.—From Κυον, a Dog, and οδους, a tooth.

Cynodon dactylon, Creeping Dog's-tooth Grass.—In the climate of Great Britain, the produce and nutritive powers of this Grass are insignificant, compared to the importance attached to them in the East-Indies. One of the most interesting circumstances connected with the history of this Grass, is its having been clearly ascertained to be the *Dúrva*, or Dub-grass of the Hindoos; respecting which Sir Wm. Jones observes:—"Its flowers, in their perfect state, are among the loveliest objects in the vegetable world, and appear, through a lens, like minute rubies and emeralds, in constant motion from the least breath of air." Its usefulness, added to its beauty, induced the Hindoos, in their earliest ages, to believe that it was the mansion of a benevolent nymph.

Cynoglossum.—Κυνογλοσσον, from Κυνος, a Dog, and γλωσσα, a tongue; descriptive of the shape of the leaves.

Cynoglossum officinale, Great Hound's-tongue.—The whole herb is of a dull green, downy, and very soft, exhaling when touched a pungent and nauseous scent, like that of Mice. The plant is esteemed narcotic, and dangerous for internal use. It is stated, that if gathered when in full vigour, bruised with a hammer, and laid in any place frequented by Rats and Mice, they will immediately forsake the premises.

Cynosurus.—From Κυνος, a Dog, and ερα, a tail; the spike resembling a Dog's tail.

Cynosurus cristatus, Crested Dog's-tail Grass.—The leaves of this Grass are shorter than those of any other pasture Grasses; but they grow very close together, in great abundance, and are palatable to cattle, particularly to Sheep. The culms are of a very wiry nature, being remarkably hard and tough; and as they shoot up at a season when the leaves of all the Grasses are very plentiful, they are not cropped by cattle, but are suffered for the most part to perfect their seeds, which keep firm in the husks, and are not easily shed; and hence it is that in Winter, when the ground is covered with snow, we see the seed-spikes of this Grass above its surface, attracting groups of Partridges, Pigeons, and smaller birds generally, at a season when their food is scarce. The culms of this Grass are considered amongst the very best of the British Grasses that yield a material for the manufacture of plat for Leghorn bonnets and hats.

Cyperus.—Κυπειρος, from κυπαιρος, a little round vessel; in allusion to the form of the root.

Cyperus longus, Sweet Cyperus, English Galingale.—The smell of the root of this plant is aromatic, and its taste warm and sometimes bitter, but it is now fallen into disuse.

Cypripedium.—From Κυπρις, VENUS, and ποδιον, a slipper; the nectary somewhat resembling a shoe in form, and in texture being sufficiently delicate for the attire of a goddess.

Cypripedium calceolus, Lady's-slipper.—The singular structure, and the peculiar elegance of this plant, render it a desirable acquisition for the flower-garden. It is an object of constant search to gardeners and cultivators, and likely soon to add to the number of those which *have been* natives of our isle: It is not easily propagated, but may be increased by parting the roots, which flourish most in bog earth and decayed leaves, and should not often be removed. By the English name it would appear that the piety of Romish devotees had transferred the slipper from the heathen goddess to the Virgin MARY.

Cytisus.—Κυτισος, of the ancient Greeks; said to be so called because it came from the island of Cythnos, one of the Cyclades.

Cytisus scoparius, Common Broom.—The great profusion of beautiful golden yellow blossoms which this shrub produces during the early part of Summer, renders it highly deserving a place in the shrubbery. It merits some attention also as a useful plant in rural economy and medicine. It was formerly called *Planta genista*, and under this name possesses much historical interest, as from hence was derived the word PLANTAGENET. The seeds, wasted, have been sometimes used as a kind of coffee, and the tender tops as a substitute for hops. The twigs and branches are sometimed used for making besoms. They are also used for tanning leather, for which purpose they are said to be not inferior to Oak-bark. The macerated bark is found capable of being manufactured into cloth; and the plant, when burnt, affords a tolerably pure alkaline salt. The flowers yield an abundant supply of honey for Bees. The old wood furnishes the cabinet-maker with most beautiful material for veneering.

Coggeshall, Essex,
June 4, 1839.

A GLANCE AT THE HABITS OF THE *ADEPHAGA.*

By PETER RYLANDS, ESQ.

(Continued from Vol. IV., p. 347.)

IN *The Naturalist* I have more than once expressed an opinion that to devote the pages of a periodical to papers intelligible and suited alone to the professor, is to render abortive one of the otherwise most fertile methods of instructing the student, and diffusing instruction on, and exciting a taste for natural sciences. Entertaining these views, it has been my endeavour to apply them; and conse-

quently in these "glances" at the habits of the *Adephaga*, I have thought i desirable to give information and details which, although by no means *new*, are still calculated to be useful to the beginner. Having premised thus far, lest it should be thought I desired credit for originality in these present articles, I proceed with the resumé.

In the paper on the classification of the *Adephaga* (Vol. IV., p. 73, &c.) the tribe *Carabacea*, R., is stated to contain six families: these it will be necessary to notice successively.

1. *Cicindelidæ*. The term *Cicindela* is derived from κις and *candeo*—a derivation thus quaintly noticed in some lines by ANTONIUS BONSENTINUS, which MOUFFET styes "elegant"—

> "May be this Worm from shining in the night,
> Borrow'd its name—'shining like candle bright.'"

PLINY says of *Cicindelæ*,—"*Rustici stellantes volatos, Græci Lampridas vocant.*" It is evident, therefore, both from the derivation and PLINY's remarks, that the insects originally designated *Cicindelæ* were the Glow-worms, and not the pretty sparkling Beetles to which that appellation is now given. The older entomologists retained the correct application of *Cicindela*, and COWPER's poem "*Ad Cicindelam*" has reference to the Glow-worm. The name *Cicindela* was first improperly given to the Beetles under consideration by the great father of modern nomenclature—LINNÆUS, who committed many similar errors. Thus Mr. WESTWOOD remarks that "many of the Linnæan generic names are destitute of any direct application to the insects which such genera contained, this author having employed the old Natural-History names, which he met with in the early authors, in the most senseless manner. Indeed this could not be avoided in many instances, from the vague manner in which the names had been employed; and hence LINNÆUS, anxious to enlist them all again into the service of Natural History, hesitated not to employ them for objects which probably had not the least connection with those to which they had been applied by the ancients." The case under consideration is one of the worst, as the meaning of the term, as used by the ancients, is very obvious. To the confusion caused by LINNÆUS, GEOFFROY added his mite, by designating the *Telephori*, *Cicindelæ*.* Modern naturalists have, however, adopted the Linnæan name; the Tiger-beetles are now denominated by the term formerly applied to the Glow-worm, and the latter insect is called *Lampyris*, after the Greeks. Objectionable as this is, the alteration of it would be even more so, as tending to "make confusion worse confounded."

* GEOFFROY, as a reason for the above alteration in the name of *Telephorus*, states that *Cicindela* "was formerly that of a genus approaching to the Glow-worm, and perhaps of this same genus (*Telephorus*) to which we now restore it!"

The larvæ of *Cicindela* possess six eyes; the head armed with a formidable pair of jaws; abdomen furnished on the eighth segment with two erect spines. Their habits are interesting. Having burrowed in the earth a cell of a foot or more in depth, the larvæ attach themselves by means of their dorsal hooks and legs at the top, their broad head fitting the aperture. Any luckless insect that may approach the hidden foe, is immediately seized and dragged to the bottom of the burrow. Mr. Curtis is of opinion that the dorsal hooks "may, by being brought into contact with the head, enable the larva to hold its prey." But Clairville's idea seems by far the most probable, viz., that the hooks serve as an anchor for retaining it at any height in its deep cell. The grubs may be readily captured by inserting a straw into their burrows, which they so tenaciously seize as to suffer themselves to be dragged out. Before becoming pupæ, they close the openings of the cells. In Griffith's *Cuvier* (Vol. I., 170.) it is stated that they "*open* the aperture," which, however, is obviously incorrect.

In their perfect state, *Cicindelæ* will vie in beauty with almost any tribe of insects, and in voracity surpass the other Carabaceous families. Their strong, dentated, and very large mandibles, point them out as typically carnivorous. The *Cicindelidæ* frequent warm sandy districts; their flight is of short duration, though extremely brisk, and, coupled with their great agility, renders the capture of their ill-fated prey a matter of comparative ease. There are, however, species of the family destitute of wings. *Manticora*, *Ctenostoma*, *Aptema*, and a few other genera are thus confined to the ground, on which they run with great quickness, secreting themselves under stones, Grass, &c. Several of the exotic *Cicindelæ* occur frequently on the leaves of trees. Mr. Westwood remarks of the commonest British species (*C. campestris*) that it has occurred as early as the middle of February in Coombe Wood, and that when handled it exhales a pleasing scent. A similar odour is exhaled by a Brazilian species mentioned by M. Lacodaire, but which after death becomes fœtid and unpleasant. The predaceous habits and peculiar markings of the elytra of *Cicindelæ* have gained them the appellation of "Tiger-beetles." *En passant* it may be mentioned, that although *colour* can only be considered a *specific* distinction, yet in many instances it points out *generic* affinity. *Cicindelidæ* are an example of this; for although the ground-tint of the elytra varies, most of the species agree in the disposition, &c., of the spots. When inspecting specimens in a well-stored cabinet of insects from all parts of the world, we immediately perceive the similitude of the black markings on the wings of *Pontiæ*, from whatever clime; the prevailing sulphur-colour of species of *Colias;* the silver spots of those of *Argynnis;* the metallic lustre of true *Carabi*, *Calosomæ*, &c. I have a specimen of *Cicindela* from China, which considerably resembles our common *C. campestris*, though larger, and in other respects different.

Mr. Swainson will, I presume, denominate *Cicindelidæ* the "sub-typical" or "Raptorial group" of the tribe *Carabacea*, and will no doubt sieze upon their peculiar markings as corroboration of his views. Colour, Mr. S. remarks, "is one of the most certain and unerring guides we can follow when searching after true analogies. * * * The Falcons are the only diurnal birds of prey wherein we find the plumage marked with broad transverse stripes or round spots, &c., and this is precisely the pattern which belongs to the Tigers, Leopards, &c. * * * * So *universal*, indeed, is this fact [a 'striped or spotted plumage'], that we may pronounce it as the certain indication of a Raptorial type." I have no hesitation (absurd as the Quinary method appears to me) in pointing out the corroboration *Cicindela* furnishes to the above views; at the same time, feeling convinced that had the fact been just the reverse, Mr. S. would have been ingenious enough to make it "square" with his system.† For what is impossible to an author who gives the *dull-colour* of the *Grallatores* as analogous to the *brilliant plumage* of the Humming-bird? The uninitiated reader may well ask how this apparent paradox is solved. "The characteristic of all Grallatorial birds," says Mr. Swainson, "and of other groups by which they are represented in Ornithology, is to have mineral or *earthy* colours; the *Humming-bird shewing us* THE GEMS, and *the grey and brown of the Waders and the Glires, the* SURFACE-COLOUR *of the earth! !*"‡ Comment is indeed unnecessary!

2. *Brachinidæ* are principally remarkable from the possession by the typical species of the explosive property described at p. 346 of Vol. IV. of *The Naturalist*. In addition to the details there given, it will not be uninteresting to notice the apparatus which produces the smoke. This, according to M. Dufour, whose anatomical researches are highly valuable, is double, *i. e.*, there is one on each side of the abdominal cavity. Each apparatus consists of two very distinct bodies, one of which is the *preparatory* organ, the other the *conservatory* organ. The first is more interior, and presents itself under two different aspects, according as it is contracted or dilated. In the former case it is a whitish body, irregularly rounded, appearing glandular, placed under the last rings of the abdomen, opening by one end into the reservoir, and constantly terminating at the other in a very long and narrow thread. When dilated it resembles an oblong

† In fact at p. 246 of the *Treatise on the Geogr. and Class. of Animals*, Mr. Swainson does give an example of a sub-typical group just the reverse to the views above quoted; "We find," says he, "in the sub-typical order of the *Annulosa* (*Aptera*, L.) the different races of *Scorpions*, *Acari*, *Spiders*, AND ALL *those repulsive insects whose very aspect is forbidding*," &c.! So much for Mr. Swainson's "UNIVERSAL *fact*"!

‡ The above characteristic specimen of Quinary logic was unnoticed in my papers on the "*natural*" system in Loudon's *Magazine*: indeed it would require a *volume* fully to expose Mr. Swainson's inconsistent absurdities!

membranous diphanous sac, filled with air, occupying then the entire extent of the abdomen, and appearing free, with the exception of the extremity, which opens into the reservoir. The *conservatory* organ, which is also a reservoir, presents a spherical body of the bulk of a Turnip-seed, brown or reddish, constant in its form, hollow interiorly, and placed under the last dorsal ring, exactly above the rectum. It opens by a pore on one side of the anus. A membranous tube, very short, moved unquestionably by a sphincter muscle, serves to expel the smoke. M. Dufour has observed in *Carabi* and *Blaps* an organ similar to that which he names preparatory, but which is never swollen with air.

I am inclined to agree with Mr. Westwood in arranging amongst the *Brachinidæ* the remarkable *Mormolyce phyllodes*. The genus *Mormolyce* is restricted to the above-mentioned species, which was discovered in Java by M. Hegenback. The feature by which it is principally characterised is the dilatation of the elytra, which project beyond the abdomen, the projecting portion being very broad and flat, and arched externally. This peculiarity, together with the form of the thorax, gives it the appearance of a leaf; hence its specific name *phyllodes*. It appears to be confined to Java.

The habitats of *Brachinidæ* vary considerably. The typical species are found under stones, &c.; *Odacantha melanura* lives in shady and humid places: great numbers of them were captured by Dr. Leach amongst Reeds and Rushes; *Lebidæ*, *Dromii*, &c., occur chiefly under the bark of trees.

A few particulars respecting the geographical distribution of this family may be noticed. *Anthiæ* and *Graphiphoræ* are peculiar to the deserts and similar places in Africa, and Latreille remarks, that although there have been found in the Southern parts of Spain and Italy many insects of the North of Africa, there has never been discovered there a single species of these genera. The typical *Brachini* are found in various parts of Europe, though the largest species occur between the Tropics. All the known species of *Drypta* belong to the old continent or New Holland. *Agra* is confined to intertropical America. *Demetrias*, *Dromius*, and *Lebia* are principally European.

3, *Scaritidæ* constitute a small family, containing, however, species differing not a little in habits. Scarcely anything is known of the larvæ—that of *Ditomus Bucephalus* (which I believe is the only one known) has the form and habits, according to Latreille, of the larvæ of *Cicindela*. In the perfect state Latreille and Dejean are of opinion that *Scaritidæ* are herbivorous; Olivier, Westwood and others contending that they are insects of prey. It appears probable that both parties are correct; some of the species preferring animal and others vegetable food. De Cerisey states, that *S. gigas* devours *Melolonthidæ* and other Lamellicorn insects. *S. anthracinus* feeds upon decayed animal substances, and *S. lævigatus* on live sand Shrimps. Of *Dyschirius*, the Rev. G. T.

Rudd states, that "on turning up the sandy tracks or burrows above high water-mark to uncover the *Hesperophili* (species of *Brachelytra*, Steph., *Staphylinacea*, R.), I found their ferocious enemy, the aforesaid *Dyschirius*, pursuing his work of destruction. These *Dyschirii* burrow after, sieze, shake, as *Cicindela campestris* does its prey, and devour the luckless *Hesperophili*. So intent are they upon their purpose, that I have frequently observed them to shake their victim after they were both brought to light." The above facts constitute sufficient evidence of the carnivorous propensity of some of the species; and that others are vegetable feeders appears probable from a statement of Latreille's, that *Ditomus Bucephalus* had been seen to climb on the blades of Grass, and carry off the little balls from them; in addition to which, the testimony of Dejean deserves consideration. There can, however, be no doubt that the majority of *Scaritidæ* are decidedly carnivorous.

Most of the species are of a shining and uniform colour, which may be accounted for by their nocturnal habits. During the day they lie concealed in holes, or under stones near water; many of the species occur upon the sea-shore: *Ditomi* inhabit the dry and sandy plains in S. Europe or Africa, and are therefore an exception to the above observation.

Scaritidæ are peculiar to the warm climates of both continents; the largest species being found in America and Africa. *Enceladus gigas* (well-worthy of its name) occurs in Angola; *Siagonæ* are chiefly found in N. Africa or the East Indies, one species only having been discovered in Europe. The typical *Scarites* occur in Sicily, on the borders of the Mediterranean, and in other parts of Europe. *Carenum* appears to be confined to New Holland, and *Acanthoscelis* to the Cape of Good Hope. *Apotomus* and *Dyschirius* are principally European, the species in these genera being of small size. A new genus established by Mr. G. R. Gray, of which only one species—a very fine one—is known (*Goniotropis Braziliensis*), is confined to the country from which the *specific* name is derived.

Bewsey House, Warrington,
July 13, 1839.

SKETCHES OF EUROPEAN ORNITHOLOGY.

Gould's "Birds of Europe," Part V.

By Neville Wood, Esq.

(Continued from p. 66.)

The fifth part opens with a very spirited and characteristic figure of the Bearded Lammer, *Gupista barbata*,—Gupiste barbu, *Fr.*—Avoltojo barbuto, *It.*

Bärtiger Geieradler, *G.*—This species (in its immature plumage *Vultur niger* of some authors) ranks alone in the genus *Gupista*, which is intermediate between *Vultur* and *Aquila*. It is nearly allied to the Alpine Abern (*Neophron Alpina*), and, like that species, it is found in various parts of Europe, Asia, and Africa, but not in Britain. It inhabits the highest ranges of mountains, and appears to be abundant in the Himalayas. Makes no nest, but lays its two eggs, which are white with brown blotches, on the hard surface of lofty and inaccessible rocks. The plumage of the sexes is similar, and no material difference of size is observable. The figure is one-third of the natural size, adult male.

River Dunlin, *Tringa pusilla*, Lath.,—Bécasseau échasse, *Fr.*—Gambecchio oculetto, *It.*—Kleiner Strandlaufer, *G.*—We are here given three representations, in adult Summer plumage, adult Winter plumage, and immature dress. They are the size of life, and well executed; that in Winter plumage is the best. Inhabits Europe (including Britain), and specimens have been received from India. The borders of lakes and rivers are its favourite resorts. *Food:* Worms, insects, and small *Crustacea*. Nidification little known; the egg somewhat resembles that of the Common Sand-piper (*Totanus hypoleucos*), but is considerably smaller, of a reddish-white colour, spotted with dark brown.

Garrulous Roller, *Coracias garrula*, Linn.,—Rollier vulgaire, *Fr.*—Blaue Racke, *G.*—An adult female, natural size, is figured; a very fair representation. This beautiful bird is stated to be abundant in the Oak-forests of Germany, and likewise in those of Scandinavia. It is less common in France, and several individuals have been shot in England, where it has mostly been met with on the North-Eastern coast. Frequents extensive woods; builds in the holes of decayed trees, and lays from four to seven eggs; these are smooth and shining, nearly round, closely resembling those of the Kingfisher, but considerably larger. Sexes differ little; but the young do not arrive at their full brilliancy till the second year. *Food:* Worms, Snails, insects, &c. Noisy and active in its habits.

The next plate contains, 1st, the Whitethroated Fauvet, *Ficedula cinerea*, Blyth,—Fauvette grise, *Fr.*—Fahle Sanger, *G.*—Capinera commune, *It.*—The character of the figure is good, but Mr. Gould has not recorded any changes of plumage. In many specimens the white does not extend lower than the breast. Very common in most parts of Britain and Europe, and has a short but pleasant song, uttered on the wing. Mr. Gould informs us it has the power of imitating the notes of other birds, but this we have never observed. Hedges and thick brakes are its favourite resort. It is a Summer visitant with us. Makes its nest in low bushes, and sometimes on the ground (we have seen one in a Yew-tree); it consists of the stalks of the Common Bedstraw (*Galium aparine*), and is of very slight construction. Eggs four or five, of a dirty white, blotched with ash-gray. The second figure is the Whitebreasted Fauvet, *Ficedula garrula*,

Blyth,—Fauvette babillard, *Fr.*—Klapper Sanger, *G.*—It differs from the last in its smaller size, and in having the whole under parts of a silvery white. Mr. Gould's figure is a very good one. This bird is less common in England than the Whitethroated Fauvet, and has seldom been traced further to the North than Yorkshire. Inhabits the warmer parts of Europe. It is shy in its habits, but is rather more of a tree-bird than the last species; builds in low bushes, Brambles, Nettles, &c., and is often seen threading the interstices of hedges and brakes; it is partial to orchards, and may be seen at the tops of lofty trees. Eggs four or five, nearly white, blotched at the larger end with gray. It is, also, a Summer visitant, and has a pleasant song, which we never heard it utter on the wing. Sexes resemble each other. Both these figures are of the natural size, and in their Spring plumage.

A lovely representation of the Wood Pigeon, *Columba arborea*, N. Wood,—Colombe des-bois, *Fr.*—Holtz Taube, *G.*—Inhabits the middle countries of Europe, being less abundant in the other regions. Occurs in the midland counties of England, in large woods. We are informed by Mr. J. D. Salmon, that it is very common in the sandy district of Norfolk, where it breeds in deserted Rabbit-burrows, and the young are caught before they are able to fly. In general, however, it builds its nest in the holes of old trees, making little or no nest, and laying two white eggs. *Food:* peas, and the seed of other plants belonging to the Bean family *(Fabaceæ)*, and also Turnip tops, Corn, &c. The sexes are similar, but the young, as in other Pigeons, do not possess the metallic lustre of the adults. The figure is of the natural size. This is erroneously called the "*Stock* Dove" by some authors.

Male and female Kestril Falcon, *Falco tinnunculus*, Linn.,—Faucon cresserelle, *Fr.*—Falco acertello, *It.*—Turm Falke, *G.*—The figures are not wanting in character, but the plumage is too lax, and the air of the birds is not sufficiently bold and falconine. Inhabits the whole of Europe in greater abundance than any other of the genus, and also parts of Asia and Africa contiguous to the shore. Hovers over fields and waste lands in quest of small *Mammalia*, birds, Frogs, insects, &c., which it seizes in the usual manner of the *Falconidæ*. The male acquires its beautiful adult plumage at the age of three years, the female at the first moult. Young males resemble the females; and "this," says our author, "is the cause that so large a proportion of the birds bear the plumage just referred to, since but comparatively few survive the second year of their existence." The female differs from the male in the browner colour of the upper parts, and in having the upper parts and tail barred with brown. The figures are three-fourths of the natural size.

Ivy Wren, *Anorthura troglodytes*,—Anorthure ordinaire, *Fr.*—Gemeine Zaunling, *G.*—Mr. Gould's plate, representing an adult bird of the natural size, is

infinitely inferior to the really spirited and characteristic figure given by LEWIN, who has occasionally, though but seldom, hit off his birds most admirably. It is diffused abundantly over the whole of Europe, and occurs also in Asia and Africa, and the countries bordering on the Arctic Circle. Abounds in the thickets of the cultivated parts of England, delighting especially in heaps of dead brushwood lying on the ground, and fluttering off with a harsh twitter on the approach of man. The song is short and loud, and is heard almost throughout the year. Indigenous in England, but sometimes falls a prey to the severity of our Winters. Builds in almost any situation; the nest is domed, consisting chiefly of Moss outside, lined with hair or feathers, and slender twigs wound round the entrance. We have seen the nest consisting entirely of leaves, and others almost wholly of hay. Lays from six to eight eggs, pure white, marked with small red spots. The sexes are not to be distinguished, and the young only differ in size from the adults.

A male and female, two thirds of the natural size, of the WHITE-EYED POCHARD, *Fuligula leucophthalmos*, STEPH.,—Milouin à-iris-blanc, *Fr.*—Tafel Pochard, *G.*—Milouina penelope, *It.*—Beautiful representations, but the female is not sufficiently feathery. Common in France, Holland, Germany, India, and North-Africa; rare in England. It is an expert diver, and strong and rapid on the wing. Feeds on aquatic insects, water plants, Mollusca, &c. Builds amongst Reeds, on the banks of rivers and morasses. Eggs eight or ten, of a greenish-white colour. The female differs from the male chiefly in the under parts being brown instead of white. The young "have the top of the head blackish-brown, all the feathers of the upper parts edged with reddish-brown, and the white of the under part clouded with a lighter tinge of the same colour."

Male and female, size of life, of the ALPINE REDWING, *Tichodroma Alpina*, TEMM.,—Tichodrome échelette, *Fr.*—Picchio muriaiolo, *It.*—Mauer Baumlaufer, *G.*—These beautiful birds are well figured, and the colouring is exquisite. Inhabits the middle and Southern portions of the Continent, frequenting bleak rocks and mountains, and is found on the Alps, the Apennines, and Pyrenees. Its most favourite resorts are the ruins of castles and fortresses, where it may be seen hopping from stone to stone. Hence the name "Wall Creeper," which has sometimes been applied to it. This species moults twice in the year, and there is no very material difference between the sexes. The wing-coverts and part of the quills are of a bright crimson. It does not occur in Britain.

An adult and a young bird of the RED-THROATED DIVER, *Colymbus Septentrionalis*, LINN.,—Plongeon à-gorge-rouge, *Fr.*—Rothkehliger Taucher, *G.*—Nothing can be more beautiful than the plate before us. Both male and female, figured two-thirds of the natural size, are truly gems of ornithological painting. This is the smallest of the genus, but the most abundant, being common on the

European coasts, and especially in the Arctic regions of Europe and America. In Winter, it is plentiful on the coasts of Holland and England, and betakes itself to lakes and rivers when the seas are frozen. Feeds on small fish, Crabs, &c., and, when it repairs to fresh waters, Frogs, Newts, and aquatic plants. Flight rapid and often long sustained. Breeds in Scotland, the Orkneys and Hebrides, and the Northern shores of Europe, building a slight nest of Grass, Rushes, &c., on the borders of large lakes and morasses. Its two eggs are dark brown, blotched with black. The young do not attain the mature plumage till after the first Autumn. The young bird was described by the older authors as the Speckled Diver, *C. stellatus*, &c., the white throat of the latter, and the speckled plumage of the back, having, apparently, caused the mistake.

Common Hawk, *Accipiter fringillarius*, Ray,—E'pervier commun, *Fr.*—Sparviere da Fringuelli, *It.*—Gemeiner Sperber, *G.*—Male and female, nearly the size of life; both, but especially the male, are too highly coloured, and, like most of Mr. Gould's rapacious birds, wanting in boldness and vigour of aspect. Distributed over the whole of Europe, in many parts of which, as England, it abounds and superabounds; occurs also in Asia and Africa. Of a bold and intrepid character, feeding chiefly on the smaller Insessorial birds, but also on Partridges, Pigeons, and young poultry, which it sometimes destroys in great numbers. We have known more than one instance of its darting after its prey into the windows of houses. It seldom misses its aim, but when this does happen, it repeats the stroke until its end is accomplished. The male is easily distinguished by its rufous throat and the richer hues of the back. Constructs its nest at the tops of trees; eggs four, dull bluish-white, marked with angular red blotches. The Common Hawk delights in well-wooded and mountainous districts, where it daily destroys great numbers of small birds, *Mammalia* and reptiles.

An adult, in mature plumage and two-thirds of the natural size, of the Garzet Heron, *Ardea Garzetta*, Linn.—Héron garzette, *Fr.*—Sgarza garzetta, *It.*—Straues Reiher, *G.*—Mr. Gould's figure is a very good likeness. The Egret Heron inhabits the Southern countries of Europe,—Sicily, Sardinia, Turkey in Europe, and the islands of the Grecian Archipelago, being its chief habitat. A small number migrate annually to France, and sometimes to Germany; it is generally considered a British species, but only two or three individuals have been met with in this country during the last fifty or sixty years. Its food consists of reptiles, insects, fish, and *Mollusca*, peculiar to its favourite morasses. The young bird, destitute of the graceful tuft which adorns the head of the adult, has been named the "Little White Heron," which, however, is not the bird of that name described by Montagu. In Egypt it is called the "Ox-keeper," from its associating with the cattle, and feeding on the larvæ with which the backs of these animals are infested. Nidificates amongst the herbage in morasses, and

lays five white eggs. The colour of this handsome bird is pure white. We beg to suggest the propriety of removing this bird from the genus *Ardea*. It might stand as *Garzetta pusilla*.

Haw Grosbeak, *Coccothraustes cratægus*, Blyth,—Grosbec ordinaire, *Fr.*—Frosone commune, *It.*—Kirsch Kernbeisser, *G.*—The male and female are represented the size of life. Both of them are too thick and heavy, but the head and bill of the female, in a difficult attitude, is lovely, and the colouring is good. Occurs almost throughout Europe, and has lately been discovered to breed in the South of England. It is now proved to be indigenous, and we agree with our author in thinking that its numbers must have increased considerably of late years in England. Mr. Blyth informs us he has a live female in his possession, and that he has seen several others in his neighbourhood. Feeds on slugs, berries, seeds, and the kernels of stone fruits, which it cracks with ease. It breeds in May and June, in Fir and other trees of various altitudes. The nest is shallow and loose, consisting of sticks interspersed with white Lichens, and is lined with roots. It is stated to be even less than that of *Pyrrhula vulgaris*. Eggs from four to six, pale greenish-white, spotted and streaked with grey and brown. The throat, cheeks, and head of the young are of a dull yellowish colour, under parts white, the flanks marked with brown streaks, and the upper parts spotted with dirty yellow. The female is of a more dingy hue than the male.

Two adult figures of the Marsh Hoopoe, *Upupa epops*, Linn.,—Huppe commune, *Fr.*—Upupa rubbola, *It.*—Gebanderter Wiedehopf, *G.*—The female, represented in the act of coming out of the hole of a tree, is admirable, but both figures would give an idea of much larger birds than is actually the case. Extends over the whole of Europe and Africa, and specimens have been received from India and China. Rare and irregular visitor to Britain, where, however, it has been known to breed occasionally. Builds in holes of trees, crevices in rocks, fissures in walls, holes in the ground, or dunghills. Eggs five, light grey, clouded with dark grey. Sexes and young similar. Feeds on insects, grubs, &c.

Tawny Hooter, *Aluco stridula*,—Chouette hulotte, *Fr.*—Alucco maggiore, *It.*—Brand Kaute, *G.*—An excellent figure, natural size. Inhabits the more extensive forests of the Continent, but is rare in Holland: extremely common in England. Builds in the holes of trees, preferring those which are Ivy-clad: sometimes takes possession of the deserted nest of a Crow, or other large bird, in which it lays its eggs, which are rather large, elliptical, and pure white. Feeds on Mice, Shrews, Moles, &c. *Syrnium* is apt to be confounded with *Surnia*, and, therefore, *Aluco* is preferable.

Common Pintail, *Dafila epilobium*,—Dafile ordinaire, *Fr.*—Longuacoda commune, *It.*—Gemeiner Spiessen, *G.*—In our opinion, these figures, representing a male and female, natural size, are decidedly the best in the Part; the feathering

is beautifully delicate. Inhabits Europe, North-Africa, Asia, and the temperate districts of North-America. Is a periodical visitant with us, and great numbers are annually caught in the various decoys, and send to the London markets. Nidificates in extensive beds of Reeds, concealing its nest in the thick herbage beside the water. Eggs eight, and greenish-blue. The sexes offer much the same difference of plumage as the Teal. Feeds on aquatic plants, insects, Mollusca, &c., and is said to be delicate eating. It does not stay to breed in Britain.

Snowy Longspur, *Plectrophanes nivalis*, Mey.,—Plectrophane de-neige, *Fr.*—Plectrofano nivolo, *It.*—Schnee Plectrophe, *G.*—Intended to be the size of life, but both the figures are far too thick and heavy. The young and immature birds were described, by the older writers, as the Tawny Bunting and Mountain Bunting; but the observations of Selby and others have long since satisfactorily dispersed the mist in which this species was once enveloped. Inhabits Europe and America. Winter visitant with us, resorting to barren upland tracts. Builds in the niches of rocks, or among large stones on the sea-shore; the nest consists of dried Grass, lined with hair or feathers. Eggs six or seven, pale flesh-colour, with small dots, and at the larger end blotches of reddish-brown. *Food:* the seeds of Alpine plants, insects, and their larvæ.

Kentish Plover, *Charadrius Cantianus*, Lath.,—Pluvier de-rivage, *Fr.*—Weisstirniger Regenpfeifer, *G.*—Pretty figures, but they have too *starved* an appearance. The best plate we have seen of this species is in Mudie's *Feathered Tribes*. Common on the Southern coasts of England, and likewise on those of France and Holland. Subsists on marine insects and Worms, which it finds among the loose stones. Lays its five yellow eggs, marked with irregular blotches of dark brown, on the naked sand, or among the shingles on the beach. The female is known by the absence of the black band on the forehead.

An adult individual, natural size, of the Siberian Jay, *Garrulus infaustus*, Temm.,—Geai imitateur, *Fr.*—This plate could scarcely be surpassed; it is perfectly alive, and is drawn and coloured in the best style. Inhabits the North of Europe, its soft and compact plumage being well fitted to enable it to brave the rigours of the severest Winters. It is found in woods, and feeds on various wild berries, insects, larvæ, Worms, &c. Builds, in Fir trees, a nest consisting of sticks and Grass, and lays five eggs. Both sexes are alike. This bird should not remain in the genus *Garrulus*.

Adults, in the Summer and Winter garb, of the Redshank Sandpiper, *Totanus calidris*, Bechst.,—Chevalier gambetta, *Fr.*—Totana gambette, *It.*—Rothfussiger Wasserlaüfer, *G.*—We much prefer the right-hand figure to the other. Inhabits Europe, and is indigenous in Britain, frequenting the sea-coast or the borders of rivers and marshy tracts, where it constructs a frail nest in a tuft of herbage, and

lays four eggs, greenish-yellow, spotted with brown, most thickly at the large end. The sexes are similar as regards plumage, but the female is somewhat larger than the male.

August 9, 1839.

CONTRIBUTIONS TOWARDS A MORE ACCURATE KNOWLEDGE OF THE FRESH-WATER SPONGE (*SPONGILLA LACUSTRIS*).

By Professor Meyen, M.D.

(*Translated from Müller's Archiv für Anatomie, Physiologie, u. Wissenschaftliche Medicin.*)

The Sponges of the fresh water have long been a source of trouble to the naturalist, since he knew not whether they should be placed amongst animals or vegetables. At the present time, however, I believe it may be assumed that they all belong to the animal kingdom. On a former occasion I proved that *Spongia friabilis* of Lamarck and Esper is nothing more than the skeleton of *Alcyonella stagnorum* (see *Isis*, 1828, p. 12.); at present I have various observations to communicate, showing that *Spongia lacustris* is also the residence of a Polyp, which in the mean time was rendered probable in the highest degree. Yet it must still be remarked, that amongst the forms known by the name of *Spongia lacustris*, certainly many at least specifically varying kinds are confused, a more accurate distinction of which will presently be given.

Towards the end of last Summer I fished up from a considerable depth of standing water a number of the *Spongia lacustris*, the green and gelatinous substance of which was already for the most part destroyed, so that the silicious skeleton, consisting of the well-known *Spongilla* needles, was very easily observed. In the individual meshes which the needles of this skeleton form in their combination, lay the round whitish-yellow little bodies which are considered as the sporangia of these Sponges. They were of the size of the smallest Poppy-seed, and came gradually out of the meshes of the silicious skeleton after the entire had laid quiet for some months in my chamber. The more accurate consideration of these round bodies shows that they are formed in a manner entirely different from the sporangia of *Algæ*, whilst they agree entirely with the so-called Winter gemmules (*Winter-Eiern*) of Polyps. They are formed out of a firm and leathery membrane, which, except on a small round spot, is laid over their entire surface with a thick crust, and consists of very prettily-formed silicious bodies and carbonate of lime, which is situated with a cellular appearance between the regularly-placed silicious bodies. These bodies have some resemblance to those which appear on Polypiferous gemmules. They are about three-fiftieths of a millimeter in length,

and consist of spiculæ of one-two-hundred-and-fiftieth to one-two-hundredth of a millimeter in breadth, on the ends of which are seated very beautifully-formed disks of one-fiftieth M. in diameter. These little disks are more or less strong at the edges, and always rather regularly notched; and if they lie free for a long time, each tooth extends itself from the edges of the disk into long points, four or five, but mostly seven or eight, of which are formed, ultimately doubling themselves into tolerably regular hook-formed spiculæ. The surface of the gemmules of *Spongilla* is clothed with the silicious bodies above described, and they are seated with the external side of one disk firm upon the membrane of the gemmule, whilst the disk at the other end of the spiculæ extends itself more or less over the surface of the thick crust; and the spiculæ themselves, which are all placed vertically upon the surface, become enclosed by the chalky mass of the crust, and are more visible the thinner the crust. The disk by which the spiculæ on the surface of the membrane is fastened, is quite plain; and the spiculæ stand so near one another, that they are almost always indented one with the other by the crenated borders of the disks, and upon a surface of the circumference of a quarter of a millimeter from 2,000 to 2,500 of these silicious bodies present themselves. A great number of these bodies can easily be preserved for separate inspection, if the gemmules are previously boiled in a mineral acid. The Chalk-mass between these bodies exhibits exceedingly small four-, five-, and six-sided figures, as if there were present a cellular structure, similar to that which I have described in the Winter gemmules of *Alcyonella stagnorum*.

Each of the gemmules of *Spongilla* has a little round spot where the crust is absent, and where it apparently opens when the contained embryo is born; but at the beginning of January of this Winter, the contents are still of such a nature that it is impossible to predict what will take place. When the gemmules are passed, there appears a thick whitish substance, which consists of little bright globules, and larger balls of an equal circumference and circular form; on these balls or larger globules an exceedingly delicate mucous membrane is observed, which encloses the entire bundles of smaller globules, but on the slightest touch is destroyed. If these balls are placed between two glass-plates and pressed slowly, the larger globules are broken down into much smaller molecules, which exhibit an exceedingly active molecular motion. But what will be formed from these contents of the *Spongilla*-gemmules, the observations of a future period must point out.

In the substance of *Spongilla lacustris*, besides the ordinary silicious spiculæ, externally beautifully-formed silicious bodies present themselves, and which I have observed from one-sixteenth to one-tenth of a millimeter in length; there are also spiculæ of excessive delicacy, which are clothed upon their surface with a great number of little pointed excrescences, which become longer with increasing

age. Sometimes similar excrescences are to be found on the ordinary spiculæ which are fastened on the surface of the gemmules.

All these marked forms of the silicious formations will surely furnish an easy means for distinguishing in future the species of the *Spongillæ* of our waters.

The discovery of these silicious formations upon the gemmules and in the substance of the *Polypiferæ*, has lately excited much interest, Professor TURPIN having very correctly ascertained the presence of the gemmules and their silicious masses in the Flint-stone of Bilin and Delitzsch, which he has beautifully delineated. He was led to these researches through observations on the gemmules of *Cristatella*, whose remarkable investments with those of the gemmules of *Alcyonella* were discovered by me in 1828, and described in the *Isis* for 1830, and not by GRAHAM DALZELL in 1834, as is unjustly asserted by EHRENBERG.

In the last place I may remark, that the large silicious spiculæ of *Spongilla* in many places are enclosed, or at least bound together, by a regular hardened silicious mass; and that they, as well as this mass and the spiculæ, become perfectly loosened by water in the course of four or five years.

THE BOTANICAL LOOKER-OUT.

No. XIII.—JUNE.

(Continued from p. 62.)

"In every copse and sheltered dell,
Displayed to the observant eye,
Are faithful monitors, who tell
How pass the hours and seasons by.

The green-robed children of the Spring
Announce the periods as they pass,
Entwine with leaves Time's feather'd wing,
And deck with flowers his silent glass.

And thus each flower and simple bell,
That in our pathway scattered lie,
Are Flora's monitors that tell
How fast the winged moments fly.

Time will steal on with ceaseless pace,
Yet lose we not the fleeting hours,
While thus their fairy steps we trace,
As light they dance among the flowers."

CHARLOTTE SMITH.

In my last communication I presented my readers with a bed of Roses, to which I hope no objection has been made; but while we have been reposing upon it, I find so many flowers have sprung up around us, that unless numbers are altogether neglected, an additional paper is absolutely necessary to recount those that belong to the delightful month of June.

I may here mention a subject not previously dilated upon—the coincidence of the flowering of certain plants with particular days of festivals. Rustic observers, men without books, having often observed particular flowers appearing almost constantly when they were engaged upon some ever-recurring employment, or on some holiday they delighted in, at length associated these flowers with the anniversaries referred to, and conceived that the times of their observations were not legitimately arrived, if the flowers were not apparent in their beauty. Thus Dyer has made Sheep-shearing to correspond with the flowering of the Elder (*Sambucus nigra*)—

> "If verdant *Elder* spreads
> Her *silver flowers*, if humble Daisies yield
> To yellow Crowfoot and luxuriant Grass,
> Gay shearing-time approaches."

This, according to Forster, as marked in the ephemeris of Nature, should be about the 5th of June, and in average years the Elder is often in full flower by that time; but in the ungenial season of 1838 I observed no flowering Elder till June 23rd; and even this year, although not quite so bad, no Elder is in flower at the date when I pen this (June 10). Poor Clare, in his *Shepherd's Calendar*, mentions a curious custom, as still existing at the termination of the Sheep-shearing at farm houses, and probably derived from long antiquity—when a damsel presents every shepherd who has been employed in the work with a bouquet of flowers—commonly called "clipping-posies." As Clare mentions several flowers that appear in the selection, I shall quote his homely strain—

> "And now, when shearing of the flocks is done,
> Some ancient customs, mix'd with harmless fun,
> Crown the swain's merry toils. The timid maid
> Pleas'd to be prais'd, and yet of praise afraid,
> Seeks the best flowers; and those of woods and fields,
> But such as ev'ry farmer's garden yields—
> Fine Cabbage Roses, painted like her face,
> The shining Pansy, trimm'd with golden lace;
> The tall topp'd Larkspurs, feather'd thick with flowers,
> The Woodbine, climbing o'er the door in bowers;
> The London Tufts, of many a mottled hue,
> The pale pink Pea, and Monks-hood darkly blue;
> The white and purple Gilliflowers, that stay
> Ling'ring in blossom Summer halfaway;
> The single Blood-walls, of a luscious smell,

Old-fashion'd flowers, which housewives love so well;
The Columbines, stone-blue, or deep night-brown,
Their honeycomb-like blossoms hanging down,
Each cottage garden's fond adopted child,
Though heaths still claim them, where they yet grow wild;
With Marjoram knots, Sweet-briar, and Ribbon-grass,
And Lavender, the choice of every lass,
And sprigs of Lad's-love—all familiar names,
Which every garden through the village claims.
These the maid gathers with a coy delight,
And ties them up in readiness for night;
Then gives to every swain, 'tween love and shame,
Her '*clipping-posies*,' as his yearly claim."

Anciently, the flowers of the woods, fields, and gardens, were intimately associated with the festivals of the church; and when the style was altered in the last century, many people who had slips in their gardens from the celebrated Holy Thorn of Glastonbury, said to flower only on the eve of our Saviour's nativity, boldly appealed to it to solve their doubts, and as the Thorn, true to its usual time, could not be persuaded to accelerate its budding, Old Christmas-day was long kept in defiance of the Act of Parliament, and even now, in secluded parishes, is honoured as alone worthy of hallowed respect. The old rhyming anthology says—

"When St. Barnaby bright smiles night and day,
Poor Ragged-Robin blooms in the hay;"

and certainly we may rest assured that Summer is not come till this plant, *Lychnis flosculi*, shows its ragged red petals in the Grass. Another plant, still more true to the first Summer days of June than the Ragged-Robin, is the Silver-weed (*Potentilla anserina*), which, distinguished by its creeping argenteous leaves and brilliant golden flowers, now burnishes the sides of roads and heathy spots. At this time, too, the Yellow-rattle (*Rhinanthus cristagalli*) abounds in the Grass of meadows, and when its seeds *rattle* spontaneously in their capsules, like dice in a box, the Grass is said to be ripe for cutting. The St. John's-wort, (*Hypericum*) bears its title from flowering on or about June 24th, the day of the celebration of the feast of John the Baptist.* Facts like these furnish an incentive for a botanist to "look out," and by examining the appearance of well-known plants, he is soon able to know whether the season is forward or backward, and even by how many days it is so. I regret to say that I have a very dismal "look-out" this year, for while the wintry winds blew down half my Apple-trees, the biting frosts have so cut up the blossons of the rest, that I

* In some parts of Wales this solstitial flower is placed upon door-posts as a defence against evil spirits—a custom, perhaps, derived from Druidical times.

shall be compelled to fill my casks with water instead of cider, and in despair turn teetotaller—"*necessitas nullas habet leges.*" Then, by some means or other, such a swarm of caterpillars and *Aphides* have been wafted to Oaks, Ashes, Maples, Apples, and other trees, that the young foliage is eaten up as fast as it appears, and at this time Oaks, Ashes, and Apple-trees in my vicinity, are nearly as denuded as in the middle of December. Well, I must solace myself with flowers, and take lessons on "total abstinence."

In a former paper I alluded to the localities of plants, and I may here add that the *habitats* some of them affect are equally curious, and form a great charm in tempting the exploring foot of botanical research. It may be said in general that some plants are found in woods, some in precipices, and others in bogs—but where are these woods, precipices, and bogs?—they must be sought and explored, for every one by no means nourishes the same plants, and some are very local, and only to be met with in peculiar spots. Not long since I pointed out to a friend the habitat of the British Woad (*Isatis tinctoria*) on a Red-Marl cliff not very distant; but if my good friend were compelled to clamber up every cliff and hill within the kingdom of England, dominion of Wales, and town of Berwick-upon-Tweed, day by day, till another *Isatis* met his view, I fear his ascents and explorations would produce many an adventure in

"——— th' imminent deadly breach"

ere he effectually accomplished his purpose. Another friend and myself were nearly a whole day hunting among marshes and ditches a short time since for the beautiful Water Violet (*Hottonia palustris*), which we failed to find, though a thousand "*Adders-tongues*," which we had dreamt not of, presented themselves across our track—yet only two or three days after a fair maiden brought to my house a bunch of these self-same Water Violets, which my friend and myself had so long looked for in vain. And these lovely gems of intermingled Lilac, white and yellow, abound in one watery ditch only in my neighbourhood, while a thousand excursions failed to present them ever to my view before. So the beautiful Vetch (*Vicia sylvatica*), whose blossoms, marbled with deep purple veins, might, as Sir Walter Scott says, "canopy Titania's bower;" in some woods it profusely abounds, and, covering the bushes and trees, makes a delightful show, while in others it might be sought for in vain. Many of the *Orchideæ* are very local—the beautiful Bee Orchis (*O. apifera*) generally only occurs on or near Limestone; the Frog Orchis (*Platanthera viridis*) in most pastures, and the singular Lizard Orchis has been only met with near Dartford, in Kent. Those who live in the vicinity of the Chalk formation may find many beautiful plants confined to such habitats, as the Military Orchis (*O. militaris*), Monkey Orchis (*O. tephrosanthos*), and the very singular Green-man Orchis (*Aceras anthropophora*), whose flowers have such a strange anthropomorphous aspect, as to seem like little men or

Monkeys. Indeed, scarcely a range of hills or mountains exists which has not some plants either peculiar to it, or more abundant there than in other places—and in glancing at my herbarium, I have just met with a fine specimen of the purple Milk Vetch (*Astragalus hypoglottis*), which I well remember to have snatched with joy from the rugged brow of Bredon Hill nearly ten years ago.

Several plants puzzle the botanist from their runagate disposition—always shifting their positions, and hence never to be found precisely in their former abodes. Such is the pretty little Deptford Pink (*Dianthus armeria*), that coyly opens only one of its speckled blossoms at a time, then closes it, and unfolds another, thus retaining her beauties as long as possible, and offering a lesson of economy. The beautiful crimson Grass-vetch (*Lathyrus nissolia*) is another wanderer, that rarely presents its crimson flowers to the charmed eye in bushy places, where it would be totally inconspicuous without such adornments, as its leaves simulate those of Grass. The botanist, then, must let no ramble escape him without improvement, or he may lose opportunities never to occur again, for it often happens that various contingencies are required for the flowering of a plant, which may not again happen for many years: thus, when an undergrowth of wood is cut down in a coppice or forest, that season the ground being more open to the influence of the sun, plants arise and blossom before unknown there, which, as the trees grow, sink again into profound repose—and, as in the tale of the "Sleeping Beauty of the Wood," remain absorbed in deep slumber, till the sun, like a liberating hero, once more pierces into the broken labyrinth of their prison, and rouses them to renewed life and joy.

There are several plants that bear the name of "meteoric," so denominated by Linnæus, as being more subjected than others to the influences of the weather and atmosphere, or at all events more sensitive to those influences. The pretty *Arenaria rubra*, that opens its purple petals wide before the mid-day sun, closes them instantly as soon as plucked, or folds them close should a storm obscure the welkin with dark clouds. The Daisy "goes to bed," as it is said, before the sun goes down, but the bright Yellow-wort (*Chlora perfoliata*) closes the flowers before 5, p. m., and the yellow Goat's-beard (*Tragopogon pratensis*), so common now in upland meadows, even before noon—hence its colloquial name, "Go-to-bed-at-noon." The little Pimpernel (*Anagallis arvensis*) sullenly keeps its scarlet petals closely shut on a cloudy or rainy day, and this so constantly and certainly, that it has been called the "Shepherd's Weather-glass;" for whatever the barometer may indicate, if the Red Pimpernel has its flowers expanded fully in the morning, there will to a certainty be no rain of any consequence on that day, and the umbrella and the Macintosh may be safely dispensed with.

The meadows are now in their glory with towering Grasses, soon destined to fall before the scythe; but ere they are cut down in their pride, several beautiful

flowers are seen sparkling amidst the golden Buttercups, and one characterized by its large purple corolla—the Meadow Cranes-bill (*Geranium pratense*) cannot fail to be noticed, as well as the tall rough Cow-parsnep (*Heracleum sphondylum*), while here and there the Bird's-foot Trefoil (*Lotus corniculatus*), the long-rooted Cat's-ear (*Hypochœris radicata*), and several other composite flowers, form growing patches of gold, finely contrasting with the argent masses of Daisies and *Anthemi*, or the bright pink clusters of the Rest-harrow and Clover.

In some romantic hollow lane, overrun with Foxglove, studded with many an old wizard-like pollard with bare extended arms, and high overbowed with wild Roses and Honeysuckle, day at last closes upon our observation, and the cold perfumed breath of evening fans our forehead. The streamlet that forms a deep gulley in the bottom, has begun a patter among the pebbles that was almost unheard amidst the din and hum of day—and the Bat, careering among the Wytch Elms high in air, is seen at recurring intervals in fine relief upon the brilliant ruby that tinges the evening sky. And now, as the road begins to appear obscure, upstarts the Glow-worm's "ineffectual fire" to cheer our path and stud the deepening gloom.

CORRESPONDENCE.

Occurrence of the Opah, or King-fish (*Lampris guttatus*), in the Mersey.

To the Editor of the Naturalist.

My Dear Sir,—Mr. Henry Johnson, of the Royal Institution, Liverpool, has sent me an account of the capture of a specimen of the Opah (*Lampris guttatus*, Retz), with a request that I would forward it for insertion in *The Naturalist*. Mr. Johnson mentions that "not having a postage-free (or penny-postage) mode of communication, he had given up the idea of sending a notice of the capture to *The Naturalist*." Many are thus, undoubtedly, prevented giving the scientific public the benefit of facts, &c., which may have fallen under their observation. Mr. Rowland Hill's plan will obviate this difficulty, and I have little doubt that Natural History will be much benefited by its adoption.

Mr. Johnson states that on the 3rd of July a specimen of the Opah was "caught in the Mersey, at the mouth of the Dee, by the common fishermen. It weighed 50 lbs., and was brought to the Liverpool market, where it attracted the attention of hundreds. A Mr. Allcock, tavern-keeper, purchased it for £5 5s., and exhibited it at a charge of two-pence for a few days; but like the rest of the finny race (and especially the bright-coloured ones, amongst which the Opah, I

believe, stands unrivalled), the colour soon began to fade. It has since been sent to a stuffer; the last account I heard, was that he was spoiling it."

Mr. YARRELL says of *Lampris guttatus* (*Br. Fishes*, Vol. I., p. 173), "this fish is as beautiful as it is rare. At the date of the first edition of PENNANT's *British Zoology*, only about five examples were recorded as having been taken in different parts of the British Islands; four of them in the North and one at Brixham. Since that time three others have been obtained, one of which is now preserved at the British Museum." According to NILSSON, the Opah has occurred in Scandinavia; Prof. REINHARDT states that three specimens have been captured in Denmark. From the testimony of an African prince, as stated in the Royal Society's Transactions, it appears that this fish is common on the West coast of Africa; and it is also found figured in Chinese drawings, proving it to be a native of the Eastern seas (YARR. *Br. Fishes*, p. 174). The above facts are sufficient evidence of the extensive geographical range which this splendid "denizen of the waters" inhabits—rare and valuable as it is on the British shores.

Believe me, very truly yours,

Bewsey House, Warrington,
Aug. 10, 1839.

PETER RYLANDS.

PROCEEDINGS OF NATURAL-HISTORY SOCIETIES.

CALEDONIAN GARDENER'S SOCIETY.

The Caledonian Gardener's Society of Edinburgh held their annual competition and dinner on the 16th of July, in the Calton Convening Rooms, which were splendidly and tastefully decorated for the occasion. The rooms were thrown open at twelve o'clock, and with the prize fruits on the tables, and an extensive collection of flowers and flowering shrubs, from the different nurseries, presented a scene not often equalled, to which MACKENZIE's excellent band gave an additional charm, by the performance of many favourite airs, waltzes, &c. The rooms were kept open till four, and many hundreds of the fair citizens enjoyed in them a delightful promenade. There were upwards of eighteen competitors for the different fruits, &c., and the prizes were awarded as follows:—For the best two bunches of black Hamburgh grapes,—First prize to Mr. JAMES GOODALL, gardener to the Marquis of LOTHIAN, Newbattle Abbey; second prize to Mr. THOMAS INGLIS, gardener to W. R. RAMSEY, Esq., of Barnton, who also gained the first prizes for peaches, nectarines, and strawberries. The second prize, for

second sorts of strawberries, was adjudged to Mr. Andrew Allison, gardener, Leith-Walk. Cherries,—The judges were so satisfied with the excellence of both parcels of Mayduke cherries, produced by Mr. Goodall, and Mr. Adam Dunn, Coltbridge, that they bestowed a prize upon each,—the second prize was awarded to Mr. James Arckle, Congalton Orchard, Haddington. Cauliflower,—First prize to Mr. John Macqueen, Jamaica-Street, Leith; second ditto to Mr. Goodall. Mr. David Stewart, gardener to W. L. Gilmour, Esq., of Inch, gained the prize for the best-dressed bouquet of flowers, which was placed in the centre of the room, and had a magnificent effect, standing eleven feet in height.—The dinner took place at five o'clock, Charles Lawson, Esq., President of the Society, in the chair; Mr. Hay, the Treasurer, and Mr. Notman, Secretary, acted as croupiers. There were, besides the members, a number of respectable visiters present, amounting altogether to above one hundred.

ASIATIC SOCIETY OF BENGAL.

Dec. 5, 1838.—The Lord Bishop of Calcutta in the chair.—Present,—Col. M'Leod, Mr. T. Prinsep, Rev. Mr. Spry, Mr. W. K. Ewart, Dr. Spry, Dr. M'Clelland, Capt. Pemberton, Lieut. Montefiore, Major Gregory, Mr. D. Hare, Mr. J. Evans.—Dr. O'Shaughnessy informed the meeting that he had, conjointly with Professor Malan, of Bishop's College, arranged to carry on the Journal under the old title, at the expiration of the year, he himself undertaking all the pecuniary liabilities of the publication. Prof. M. had agreed to assist in his department to the extent of one half. He regretted, however, to have to announce that the state of his colleague's health was at present so delicate, that he was unable to devote any portion of his leisure to literary pursuits.—Here the Bishop rose and explained the severe restriction under which the Professor laboured, owing to an incipient amaurotic affection of the eyes, and that a total abstinence from all application, with a temporary sojourn in the interior, would, he trusted, restore him to perfect health.—A superb specimen of a fishing Eagle was presented, respecting the habits of which, and likewise of *Ursus labietus*, a note by Dr. Evans was read and discussed.—Dr. M'Clelland presented a piece of the "Terrible rock," which was found adhering to the bottom of the *Amherst*. It is remarkable for the identity in composition and appearance, and in the character of several perforations in its substance by boring-molluscs, with rocks from an elevation of 5,000 feet at Cherra-Poonjee.

AGRICULTURAL AND HORTICULTURAL SOCIETY OF INDIA.

The ordinary monthly meeting was held at the Society's rooms at the Town Hall, Dec. 8, 1838.—The President entered on the business of the meeting by intimating to the members officially what he knew they were well acquainted

with privately, namely, the lamented death of the late Secretary. He felt that the Society had sustained a loss of no ordinary kind, for to the personal exertions of Mr. Bell was the present flourishing condition of the Society owing. Such services deserved an especial mark of the Society's regards, and a feeling expressive of regret was accordingly read and unanimously responded to.

The President intimated to the members that he had besides to submit a money motion for the benefit of the distressed family of the late Secretary; and as the Vice-presidents had undertaken to perform the secretarial duties of the Institution till the annual general meeting, to be held the 9th of next month (January), he proposed that the salary now in abeyance be transferred to the family of Mr. Bell until the election of a new Secretary. The motion was accordingly laid on the table.

Dr. Wallich then rose and submitted, as a further testimony of the estimation in which their late Secretary was held, and the sense the Society entertain of their great loss, that the meeting adjourn.

This proposition was acceded to, but as the President had one important communication to make, an exception was made in its favour. It was the receipt by the overland mail just come in, of a despatch from the Home Government, through the authorities here, calling for a statistical return of the prices of corn throughout the empire, as well as of all the chief products of the land, intimating that the board of customs should assist in the undertaking. The despatch was forwarded to the President of the Society by the Governor of Bengal, with a request that he would submit it to the Agricultural Society, for the purpose of recommending the most ready mode of obtaining such a desideratum; and accordingly the President read the names of several gentlemen as being most conversant with statistical matters, and from their official situation best adapted to be formed into a committee to consider the question, if they would kindly undertake the office.

Mr. G. Prinsep exhibited to the members present a specimen of *Opuntia* with the true Cochineal insect which had just reached him from England, through the kindness of Mr. Anderson, of Chelsea, and Professor Royle.

EXTRACTS FROM FOREIGN PUBLICATIONS.

ZOOLOGY.

1. Brazilian Fossils.—M. Lund, of Lagoat-Santa, in Brazil, has made a voluminous report to the French Academy of Sciences, concerning the fossil mammiferous animals of the district, from which the following is an extract:—

Of this class of animals I found seventy-five distinct species, belonging to forty-three genera, most of which abound in caverns. The part of the country which I investigated lies between the Rio San-Francisco and the Rio Paraopeba. This district forms a plain 2,000 feet above the level of the sea, and is traversed by a chain of mountains only from 300 to 400 feet high. This chain is composed of Secondary Limestone, stratified in horizontal layers, having all the characters of Zechstein and Hochlen Kalkstein of the Germans. It is internally hollowed out into caverns, and crossed by cracks in every direction; and its interior is more or less filled with a red earth, identical with that which forms the superficial stratum of the country, and which is from ten to fifteen feet thick. This is often so ferruginous that its particles of Iron are transformed into a Pisolithic mineral, like that of the Jura. This earth has undergone some modifications in the caverns, for it contains angular or rolled fragments of the calcareous rock, particles of Lime deposited by the water which filters through the cracks, and it is impregnated with Saltpetre. The fossils lie in this earth, and are disposed pell-mell in the middle of it. They are all fragile, of white fracture, often petrified, adhere closely to the sockets in which they lie, frequently present calcareous spath, are broken, crushed, or otherwise mutilated, and bear marks of teeth, showing that they have been carried there by the ferocious animals which inhabited those caverns, and also by a species of diurnal bird.

2. Remarkable Anecdote of a Dog.—At a convent in France, twenty paupers were served with a dinner at a certain hour every day. A Dog belonging to the convent did not fail to be present at this meal, to receive the odds and ends which were now and then thrown to him. The guests, however, were poor and hungry, and of course not very wasteful, so that their pensioner did little more than scent the feast of which he would fain have partaken. The portions were served by a person at the ringing of a bell, and delivered out by means of what in religious houses is called a *tour*, which is a machine like the section of a cask, that by turning round upon a pivot, exhibits what is placed on the concave side, without discovering the person who moves it. One day this Dog, who had only received a few scraps, waited till the paupers were all gone, took the rope in his mouth, and rang the bell; his stratagem succeeded. He repeated it next day with the same good fortune. At length, the cook finding that twenty-one portions were given out instead of twenty, was determined to discover the trick, in doing which he had no great difficulty, for lying concealed, and noticing the paupers as they came for their different portions, and seeing no intruder except the Dog, he began to suspect the truth, which he was confirmed in when he saw the animal wait with great deliberation till the visitors were all gone, and then pull the bell. The matter was related to the community, and to reward the Dog for his ingenuity, he was permitted to ring the bell every day for his dinner, on which a mess of broken victuals was always served out to him.

3. Escape from a Tiger.—Lieut. F. Hughes, of the 7th L. C., was in the act of stooping to get a flower from the jungle, about 200 yards from the road-side, when he heard a rustling noise behind him. He immediately turned his head to see what it was, when he beheld a huge Tiger within a few yards of him. In the fright and hurry of the moment, when endeavouring to rise, he trod on the skirt of his dressing-gown, and fell backwards. He was at that instant seized by the brute, which caught him over the waist-band of his trowsers in its mouth. In this position the animal was dragging him, when he got his hand into his pocket, and drew out a small double-barrelled pistol, which he placed as direct for the Tiger's mouth as the position in which he lay would admit, fired, and in an instant he was free, for the beast made a tremendous spring forward, carrying with it the clothes which it had grasped.

REVIEWS OF NEW PUBLICATIONS.

A Flora of Liverpool. By T. B. Hall. With an engraved Map, and an Appendix, containing Meteorological Tables and Observations for the year 1838, by Wilson Armistead. London: *Whittaker and Co.*; *Walmsley*, Liverpool. 1839. Post 8vo. pp. 186.

Mr. Hall follows Professor Henslow's *Catalogue* in the arrangement of the genera; the only alteration he has made—and that in our estimation a judicious one—is in the terminations of the orders, in which respect he has adopted the excellent plan of Dr. Lindley, concluding the name of every order with *aceæ*, and the sub-orders with *eæ*. In so extensive a science as Botany, order and simplicity in details, at first sight apparently trifling, is not less necessary, or less likely to assist the student, than in more imposing matters.

The paper on the geological formation of the neighbourhood of Liverpool, by the Rev. Thomas Dwyer, is valuable in a book treating of the vegetable productions of that portion of country, and might perhaps have been enlarged with advantage, by adding an account of the physical aspect of the surface, and the varieties of soil, especially if viewed in connexion with diversities of the vegetation. A local Flora is of comparatively little interest to the public, or even to botanists non-resident in the tract of country treated of, unless the peculiar features of vegetation of the locality are, as far as practicable with our present knowledge, traced to their causes, or unless some data are supplied by which those causes may be discovered by others. Hence the introduction of Mr. Dwyer's sketch is an important feature, and would have been still more so had it entered further into detail on the subject.

On the other hand, we cannot but think Mr. ARMISTEAD's observations on the weather and the principal meteorological phenomena observed in 1838 out of place in a local Flora, and that the space would have been more usefully occupied by remarks bearing directly on the subject of the volume. True it is that Mr. A.'s article is highly interesting, and that it has not increased the price of the book; but it should not have been introduced except in lack of matter more closely relating to the distribution of plants than a description of the meteorological phenomena of any single year. The same remark will apply to the "Meteorological Observations," pp. 133—167, except where the effect of particular weather on vegetation is clearly pointed out. Mr. ARMISTEAD's paper on the "Effects of the Winter of 1838, on Vegetation in the Neighbourhood of Woodside and Liverpool"—suggested by Mr. H. C. WATSON's article in our Vol. III., p. 241—is quite to the purpose.

The omission of the descriptions of plants, with the exception of occasional notices respecting their peculiarities in the locality of the Flora, is judicious. Descriptions of each plant are wholly unnecessary in a local Flora, while they render the work bulky and expensive.

We believe there are in the district more species of *Salix* than Mr. HALL mentions. Also a greater number of *Carices*, as he intimates to be likely at p. 96. *Carex binervis* and *C. intermedia* grow on the Cheshire side of the Mersey, while *C. pallescens*, *C. dioica*, and *C. curta* are not so frequent in England as to render their occurrence in a small district very probable.

The addition of a good map, on a liberal scale, is a useful appendage to the volume.

The index, being made to serve the purpose of an alphabetical list of species, marked according to their frequency and other conditions, after the plan of the catalogue issued by the Edinburgh Botanical Society, is deserving of special mention, as worthy of imitation by other writers of Floras.

The author has spared no pains to render his book as complete as existing information will allow. He has not himself resided sufficiently long in Liverpool to be able, unassisted, to compose a Flora of the neighbourhood; but with the aid of the late and the present Mr. SHEPHERD, of Mr. TUDOR, Dr. DICKINSON, and others, as well as various botanical writers, he has produced a work well calculated to become a model for future publications of a similar nature. It is to be hoped Mr. HALL will not pecuniarily be a loser by his zealous and intelligent efforts.

Geological Sketches; and Observations on Vegetable Fossil Remains, &c., as collected in the Parish of Ashton-under-Lyne, from the great South-Lancashire Coal-field, &c. &c. &c. Also an Attempt to explain the original Formation of

the Earth, on a Theory of Combination. Illustrated with numerous Wood-cuts, &c. By Charles Clay, M.R.C.S.E., Ashton-under-Lyne. London: *H. Johnson; Bancks and Co.*, Manchester; *Davis*, Stalybridge. 1839. 8vo. pp. 150.

The first part of the book contains a geological sketch of the parish of Ashton-under-Lyne, with some account of the fossil remains discovered in that district, written in a popular manner, and illustrated with wood-cuts, so as to be intelligible to all classes of readers.

The second part is occupied by a theory, partially new, of the earth's original formation. We agree with our author in thinking that the publication of even erroneous theories may be productive of benefit; for though they may at the outset perplex the student, yet the various differences in the systems of geological writers will soon teach him that he must observe and reflect for himself, and that he cannot hope for success by attaching himself blindly to any one master.

Mr. Clay appears to be an apologist for Scriptural Geology, which the Rev. Professor Powell believes—in accordance also with our own views—to be as preposterous in principle as Statutable Geometry. Our author has approached his subject with a prejudiced mind, and employs much ingenious sophistry in defence of the first chapter of Genesis. To prove that the word "day" in that particular chapter is used in a figurative sense, he quotes several passages of the Bible where it is *evidently* and *undoubtedly* so employed. Now the same word is in many languages still often employed figuratively; but we fail to perceive in this fact proof that such is *always* the sense in which it occurs.

Where an author sets out by showing himself incapable of comprehending, or unwilling in any particular case to apply, the most ordinary principles of Logic, argument must with him be premature; and, seeing that the readers of *The Naturalist* are already in possession of our views on the subject, it will be unnecessary at present to renew the discussion.

The volume is concluded by various short notices unconnected with any particular locality.

LITERARY INTELLIGENCE.

Just published, "*First Lines of Education:* a Course of Lectures delivered to the Literary and Scientific Institution, Worcester, in the Spring Session of 1839, by Edward Astbury Turley, Surgeon, &c. &c." This excellent volume is based on phrenological principles, and well deserves attention at the present time; but

wing to its having reached us so late in the month, we are unable to afford it a lengthened critique.

SELECTED POETRY.

SONG OF THE BLACKBIRD AND THRUSH.

(From GRAHAME's *Birds of Scotland.*)

When Snowdrops die, and the green Primrose leaves
Announce the coming flower, the Merle's note
Mellifluous, rich, deep-toned, fills all the vale,
And charms the ravished ear. The Hawthorn bush,
New-budded, is his perch; there the gray dawn
He hails, and there with parting light concludes
His melody. There when the buds begin
To break, he lays the fibrous root, and see
His jetty breast embrown'd; the rounded clay
His jetty breast has soiled; but now complete,
His partner and his helper in the work
Happy assumes possession of her home:
While he upon a neighbouring tree his lay,
Here, richly full, melodiously renews.

——————————— The Thrush's song
Is varied as his plumes; and as his plumes
Blend beauteous each with each, so run his notes,
Smoothly, and with many a happy rise and fall.
Sometimes below the never-fading leaves
Of Ivy close, that ever-twisting binds
Some riven rock, or nodding castle wall,
Securely there the dam sits all day long;
While from the adverse bank, on topmost shoot
Of odour-breathing Birch, her mate's blythe chaunt
Cheers her pent hours, and makes the wild woods ring.

THE ANT AND THE GRASSHOPPER.

(From *The Yorkshireman*, a Religious and Literary Journal.)

A Grasshopper all Summer long
Had filled the meadow with her song;
But when Autumnal blasts prevail'd
Found that her store of victual fail'd;
So, calling on a neighbouring Ant,
She begged assistance, told her want:
"If a few grains you can but spare,
When harvest comes I will take care

('Tis all a borrower can say)
Your loan with int'rest to repay."—
Now, tho' the Ant's a noted hoarder,
She feeds no stranger, takes no boarder:
"While 'twas fine weather," she replied,
How came you not grain to provide?"
"Pardon me; all my time was spent
In singing loud, for your content."
"You sung—'twas labour—mighty good:
Now dance, and try if that be food!"

CHAPTER OF MISCELLANIES.

ZOOLOGY.

THE "VITAL PRINCIPLE" DISCOVERED!—A recent anonymous author considers that "the vital principle" is entirely dependent on *dew*, that being, as he believes, "the *primary* cause of animal and vegetable organisation;" while another writer (Mr. GEORGE CORFE) has made the first principle of life to be dependent upon the—*fat!* Unless both these writers be mad, the style and entire tenour of their publications—recently issued—can lead to no other conclusion than that their sole and anxious desire has been to ridicule Scripture and science.—ED.

ARACHNODERMA.—The *Arachnoderma* are simple marine animals with a soft transparent structure, and of natatory habits; the exquisite delicacy of their organisation—resembling a Spiders's web—suggested to DE BLAINVILLE the name *Arachnoderma*. The surface of their variously-formed bodies emits an acrid secretion, which, when applied to the human skin, produces inflammatory action of a character similar to that induced by the stinging of a Nettle. Hence the older naturalists designated this group *Urticæ-marinæ* (Sea-nettles); and CUVIER, adopting the idea, called them *Acalephæ*, from Ακαληφη, a Nettle.—THOMAS WRIGHT, Surgeon, *Cheltenham*, *July* 8, 1839.

THE RING OUZEL NEAR SCARBOROUGH.—A male Ring Ouzel in my possession was brought from Hackness, where this bird is known to breed. I shot a female in the Autumn of 1835, a few miles from this town, on the sea-coast. It was probably about to take its departure.—PATRICK HAWKRIDGE, *Scarborough*, *Aug.* 7, 1837.

ACTIONS OF THE DIPPER UNDER WATER.—The ensuing remark will interest our readers, in connexion with Mr. MACGILLIVRAY's statements on the subject:—

I am not altogether satisfied with MUDIE's account of the Dipper's proceedings

under water; nor shall I be till I can get one of these birds to dissect; for I am very doubtful whether they have any muscles above the wing adequate to the labour of inverting the process of flying. The necessity of such muscles, to enable it to do so, must be sufficiently apparent to every one.—Edward Blyth, *Tooting, Surrey, July* 16, 1836.

Song of the Gold-crested Kinglet.—I believe few persons are aware even that this fairy-like creature possesses a song at all—much less that it is a very assiduous songster. But as the bird keeps close to the upper branches of Firs and other evergreens, it is but little remarked: and its notes are so faint, that they cannot be expected to attract general attention. The same hidling habits may have caused its Fiery-crested congener to have been so completely overlooked until lately. Your readers should be on the look-out for differences—however apparentlysmall—between the Kinglets shot in their respective neighbourhoods.—Wm. Leslie Russell, *Canterbury, Aug.* 18, 1839.

Distribution of the Rudd in Britain.—The counties of England in which this fish (*Leuciscus erythrophthalmos*) occurs, are, according to Yarrell, Middlesex, Oxford, Cambridge, Norfolk, Lincoln, and York. We have found it in great numbers in the West-Riding of the last-named county. It is probably much commoner in every part of the island than is generally supposed, and is no doubt in most cases confounded by anglers with its congener the Roach, to which at first sight it bears a considerable resemblance.—Ed.

Crambus falsellus.—This insect occurs at Blandford, Dorsetshire; Brightwell and Buzfield, Berkshire; Weston-on-Green, Oxfordshire; Hampton-Wick, Axbridge, Somersetshire; &c.; from July to the beginning of September.—J. C. Dale, *Glanville's-Wootton, Dorsetshire, July* 9, 1837.

To make Steel Pens.—It is reported that there is a man in Vermont who feeds his Geese on iron filings, and gathers steel pens from their wings.—*American paper.*

The Toad poisonous.—A paragraph, copied from the *Nottingham Review*, has been "going the round of the newspapers," recording several instances in which Dogs had been poisoned in attempting to worry Toads. Naturalists must now re-consider their verdict respecting the harmless nature of this reptile.—Ed.

Fidelity of the Dog.—Yesterday week a butcher in returning from Llanfyllin market, had to cross the Godder ford near his residence, and the river being greatly swollen, he fell from his Horse, when the animal plunged, and its rider was drowned. His Dog had accompanied him all day, and it appears had seen the accident, for it followed the body as it sank, and seizing the collar of the coat with its teeth, had with great labour brought the body to the side of the stream, and, raising the head above the water, held it firmly there during the whole of the inclement night, and when discovered in the morning, the poor

animal was half immersed in the water, and shivering with cold, yet still engaged in its affectionate office, holding the head of its late master above the stream, and all unconscious that its exertions were useless, for life had long departed from him to whom the animal was so much attached. So severe had been the Dog's exertions to bring the body ashore, that the greater part of the collar of the coat, and much of the unfortunate man's shirt, were torn to pieces in the attempt; and the affectionate creature had little but fragments to hold by, whilst for many hours supporting the head of its old protector.—*Shrewsbury Chronicle.* —[The fact of the Dog having in the first instance carefully kept its master's head above water, proves the existence of reason in the animal; but the additional circumstance of its failing to discover the subsequent death of the man, points out a *small* faculty of Causalty, and a want of Individuality.—Ed. *Nat.*]

Eagle destroyed by a Weasel.—As some millwrights were going from Crieff to Breadalbane, through Glenturit, a little above Ochter-tyre, they observed an Eagle make a sudden dart to the ground, and, having evidently picked something up, again ascend with a triumphant air. He had not, however, mounted far, when he made a second descent, and remained motionless. On the men coming up to him, they found him lying on the ground, with his wings expanded to their full extent; and on turning him over, a Weasel made its escape from the talons of the now lifeless Eagle, who lay with his throat cut by his intended prey.—*Edinburgh Chronicle, June* 29, 1839.—[Many instances are on record of the smaller birds of prey having been thus destroyed by Weasels, and other members of the *Mustelidæ*. Thus it is that these much-despised creatures may prove of considerable service to Man, although thoughtlessly denounced as mere mischievous "vermin."—Ed. *Nat.*]

Artificial Hatching of Eggs.—A company is forming, at the head of which are the names of several distinguished noblemen and scientific men, for the artificial rearing and breeding of domestic fowl, game, and other descriptions of birds. The operations are proposed to be conducted on a very extensive scale; and, in addition to rearing birds for the market, and game for the preserves and parks of the nobility and gentry, will attempt the acclimating and naturalising foreign rare birds. It has been proved, by very successful experiments, that the climate of this country is no greater obstacle to artificial breeding on an extensive scale, than that of Egypt, where the art has been carried on from time immemorial.

To procure prolific Ducks.—A cadger at Forth, Camwith, has a lively Duck that regularly lays two eggs at a time; and, what is of importance, the owner can breed such Ducks at pleasure. He says, to have the double-laying breed you have simply to hatch one bird out of two eggs.

Domesticated Partridges.—The following curious circumstances were com-

municated to us in conversation, by W. H. Rudston Read, Esq., A.M., F.L.S.:—Mr. Read had some young Partridges. These escaped at an early age, but returned the following Spring with one or more wild individuals. Two of the birds made a nest in the Spring of 1838, and hatched close under the window where they were usually fed. Probably both old and young will now remain.

We have known wild Ducks, and semi-wild Canada Geese, attracted to farm-buildings and stack-yards by tame individuals of their own species.—Ed.

Account of a tame Starling.—There is now at Mr. King's, Rock Ferry Hotel, an interesting little Starling, which hops about the house even amongst strangers. "Jack" is particularly attached to Mrs. King, following her from room to room, and if he chances to be separated from her for a time, and hears her voice in a distant part of the house, he hurries off to court her acquaintance and attention. "Jack" is a native of Warwickshire, and still a young bird. He talks a little, and is fond of telling people to "get out." He excels in whistling, and in that way imitates any tune or snatch of a tune he may hear. He and a Dog belonging to the house live on terms of great affection, and are almost inseparable play-mates. "Jack" has a temper of his own, which is none of the mildest; particularly if anything edible (he has quite an aldermanic appetite) be taken from him. The offender is instantly flown at, and fought with, and told again and again to "get out!" There is another peculiarity of "Jack's" disposition, which we fear we cannot class among the virtues. He is far from being a "teetotaller." He is fond of ale, and spirits and water, but (having a truly aristocratic goût) is passionately fond of wine, particularly "champagne." When "drunk," he rarely becomes "disorderly," but amuses those around him by reeling about, and throwing himself into a variety of fantastic attitudes.—*Liverpool Standard.*

Intelligence of the Roebuck.—The following interesting anecdote, illustrative of the intelligence of this animal, is related in Lewis's *Life*, &c.:—About ten days ago, one of the farm-keepers' wives was going homewards through the wood, when she saw a Roebuck running towards her with great speed. Thinking that it was going to attack her with its horns, she was considerably alarmed—but, at the distance of a few paces, the animal stopped and disappeared among the bushes. The woman recovered herself, and was proceeding on her way, when the Roebuck appeared again, ran towards her as before, and again retreated without doing her any harm. On this being done a third time, the woman was induced to follow it, till it came to a deep ditch, in which she discovered a young Roebuck unable to extricate itself, and on the point of being smothered in the water. The woman immediately endeavoured to rescue it, during which the other Roebuck stood by quietly, and as soon as her exertions were successful, the two animals galloped away together.

The Garden Fauvet (*Ficedula hortensis*) near Scarborough.—This bird may be considered scarce in our neighbourhood. I shot one in a plantation near the Museum in the Spring of 1833. I was attracted by the singular beauty of the song. In order to obtain this specimen I was obliged to watch for a considerable time before an opportunity could be obtained for firing at it. The foliage had become thick, and the bird confining itself to the tops of the trees, I soon found it to be very restless, not remaining more than a minute in the same place, threading backwards and forwards, yet never leaving the situation in which it was first found more than fifty yards. Diligent search has been made since then, with a view to procure other specimens, but hitherto without success.—Patrick Hawkridge, *Scarborough, Aug.* 7, 1837.

The Sibilous Locustell (*Locustella sibilans*) near Scarborough.—I place this species on my list of Scarborough birds on the authority of my friend Mr. Williamson, who has met with it in Raincliffe Wood, near this town; and the Cricket-like note was distinctly heard in Dr. Murray's garden in May last. —*Id.*

Mode of Feeding, etc., of the Hooded Crow.—This bird—which is rather numerous on our coast in Winter—has a very amusing and ingenious method of breaking the shell of the Mussel, &c., in order to come at the unfortunate inhabitant, perfectly regardless of Mr. Martin's Act for the Suppression of Cruelty to Animals. The Hooded Crow rises to a great height in the air with the shell-fish in its bill, then dropping it on the hard surface below, when the bird rapidly descends to secure the morsel from the eager beaks of its brethren, which, seeing their companion soar aloft, keep a strict look-out for the shell it is about to drop, in order if possible to seize the prey.—I have often seen this end in a downright battle.—*Id.*

Cross between the Hooded Crow and the Carrion Crow.—There are instances of the former bird remaining with us during the Summer. A female Hooded Crow once paired with a Carrion Crow on one of the trees at Hackness, where they reared their young. The young birds varied in plumage, some resembling the Hooded, and others the Carrion, Crow. I believe both old and young birds are now in the Scarborough Museum.—*Id.*

The Rook building on Chimney-tops.—The Rook is capable of forming a great attachment to particular spots for breeding. Within the last few years several of these birds built their nests on the chimney-tops of some lodging-houses on the cliff at Scarborough. The few stunted half-grown trees are perfectly crammed with their nests; and from the windows of the lodging-houses being much above the tops of some of the trees, they present a curious and interesting spectacle during the breeding season. The larger trees between the summit of the cliff and the beach afford somewhat better accommodation.—*Id.*

A Cat in a Rook's Nest.—In the Autumn of last year a Cat belonging to one of the houses near the above-mentioned Rookery, took possession of one of the Rooks' nests, and, by way of indulging her fancy, would every now and then climb up the tree, coiling herself up and lying gently down in the nest. After seeing her do this one day, I gave a smart blow at the bottom of the tree, whereupon Puss put her head over one side of the nest, and very knowingly looked down; then instantly withdrawing it, satisfied no doubt of her safety, and that all was going on well.—*Id.*

Swallow's Nest Seized by a Wren.—In the chamber of an out-building at Belle-Vue, the residence of Dr. Murray, a pair of Swallows had built their nest, and immediately on its completion a pair of Wrens took a fancy to it. The Swallows, naturally unwilling to give up their labour, and the good-will of their tenement, resisted the unjust claims of the intruders. A regular battle was the result for three successive days, sometimes the Swallows taking possession of the nest, at other times the Wrens. On one occasion I managed to conceal myself in the chamber, which afforded a better opportunity of watching the contest. At length the Wrens obtained possession, and kept it, and a very amusing sight it was to observe the female sitting in the nest. She got her brood safely away.

In Winter I have constantly met with the Wren amongst the rocks near the sea-side, creeping through the crevices in search of marine insects.—*Id.*

The Hoopoe near Scarborough.—A very beautiful specimen in my collection was shot near Belle-Vue, in May 1835. This bird evinced great attachment towards the place in which it was found, allowing itself to be repeatedly fired at without forsaking it. On dissection it proved to be a male. Its stomach was filled with the remains of Beetles and other insects. Not long ago two other specimens were shot near Scarborough, one at Ganton Hall, the other on the sands, and both are now in the Museum.—*Id.*

Lesser Spotted Woodpecker (*Picus minor*) shot near Scarborough.—One specimen only to my knowledge has been shot in our neighbourhood. All the Woodpeckers are scarce with us, probably from the want of timber.—*Id.*

The Kingfisher near Scarborough.—May be seen in all our Trout-streams. I have frequently met with this beautiful little fellow during the severity of Winter at the sea-side, flitting over the rocks which surround any little pool left by the receding tide.—*Id.*

The Great Bustard (*Otis tarda*) shot near Scarborough.—A bird of this magnificent and now rare species, was killed on the Folkton Wolds, eight miles from Scarborough, in 1822, by Mr. Thomas Nicholson, huntsman to the Scarborough subscription hounds.—*Id.*

The Quail near Scarborough.—Occasionally shot in our neighbourhood. One in my collection was killed by Mr. John Bland, five miles South of this

town. Another specimen was shot near the town in the Winter, by Mr. Chambers.—*Id.*

The Blackbird's song.—It is not in the wild valley, flanked with Birchen slopes and stretching far away among the craggy hills, that the music of the Blackbird floats upon the evening breeze. There you may listen delighted to the gentle song of the Mavis; but here, in this plain, covered with corn-fields and skirted with gardens, sit thee down on the green turf by the gliding brook, and mark the little black speck stuck as it were upon the top twig of that tall Poplar. It is a Blackbird, for now the sweet strain, loud, but mellowed by distance, comes upon the ear, inspiring pleasant thoughts, and banishing care and sorrow. The bird has evidently learned his part by long practice, for he sings sedately and in full consciousness of superiority. Ceasing at intervals, he renews the strain, varying it so that although you can trace an occasional repetition of notes, the staves are never precisely the same. You may sit an hour or longer, and yet the song will be continued; and in the neighbouring gardens many rival songsters will sometimes raise their voices at once, or delight you with alternate strains. And now what is the purpose of all this melody? We can only conjecture that it is the expression of the perfect happiness which the creature is enjoying, when, uncarked by care, conscious of security, and aware of the presence of his mate, he instinctively pours forth his soul in joy and gratitude and love. He does not sing to amuse his mate, as many have supposed, for he often sings in Winter, when he is not yet mated; nor does he sing to beguile his solitude, for now he is not solitary; but he sings because all his wants are satisfied, his whole frame glowing with health, and because his Maker has gifted him with the power of uttering sweet sounds.—MacGillivray's *History of British Birds.*

Management of Bees.—A public lecture was delivered a few weeks since, in the Guildhall, Hereford, by Mr. Thomas Nutt, whose management of Bees has been so successful. After an introductory essay on the natural history of the Honey Bee, the lecturer exhibited an apiary constructed in accordance with his plan, and also a common cottage hive. He said that he was open to conviction; and if the opponents to his system would show one of more simplicity and equal efficacy, he promised to become an early convert. He then went on to show, that, so far from there being a necessity for destroying a colony of Bees in order to take the honey, such cruel practice was positively bad economy. The past season had been particularly unfavourable to Bees; the neighbourhood of this city bore testimony of the fact; but the loss of so many hives was to be attributed more to the bad management of the apiarian than to the unfavourableness of the weather. He would endeavour to show, from his personal experience, an easy and honourable way of obtaining the treasure of the Bees, without either destroying them or their works. Mr. Nutt described the impossibility of pro-

curing pure honey from the cottage hive, even with the destruction of the Bees: he then minutely explained the mode of managing his own or collateral hive, which, by means of ventilation, could be made to yield large quantities of the purest honey, swarming be prevented, and the lives of the Bees preserved in vigorous health. He exhibited two portions of honey, which were the results of his system; and certainly they were most beautiful specimens: one was in the natural state in a bell glass, just as it had been deposited there by the industrious and wonder-working Bee; the honey was as white as the driven snow, and its ramifications on the surface of the interior of the glass were peculiarly elegant; the other portion was liquified honey in a small glass jar, and was also equally white. Mr. NUTT went on to state, that the average quantity of honey taken at his own apiary in Lincolnshire in the last two years was 80 lbs.—honey of the purest kind, untainted by the operations of the queen Bee, and unsoiled by the barbarous plan of smothering the producers—honey as pure and transparent as crystal—honey of which specimens were before his audience at that moment. Now the poorest cottager could manage his collateral hives; and when he said they would produce those stores of sweets which had hitherto sold at 2*s*. per lb., here was certainly a source of comparative wealth to the cottager; for, taking the weight of honey every year at 80 lbs., which is much less than it ought to be with good management, in an average of years, there was a return of £8 per annum, the rent of a good cottage and garden! He would carry his calculations a little further. There are, according to the parliamentary returns, 847,957 agricultural families in England and Wales. Now, if each family had only one of the collateral hives, and obtained 80 lbs. of honey each, there would be an annual production of 67,806,506 lbs., or 30,270 tons of the purest sweet in the world, equivalent in money to the enormous sum of £1,695,000. Mr. NUTT concluded by stating, that his system was based upon an experience of twenty-one years; that he had stocked many of his collateral boxes in this city and neighbourhood, and that, therefore, the public would soon have the means of testing its value by experience, which he doubted not would be as successful in this county as it had been in other counties; all he stipulated for was, that the directions of management, as clearly laid down in his work, should be faithfully followed, and he was confident that the result would be the most satisfactory success.

ANIMAL INTELLIGENCE.—In the forests of Tartary and South of America, where the wild Horse is gregarious, there are herds of 500 or 600, which, being ill prepared for fighting, or indeed for any resistance, and knowing that their safety is in flight, appoint one in rotation who acts as sentinel, while the rest are asleep. If a man approaches, the sentinel walks towards him as if to reconnoitre, or see whether he may be deterred from coming near—if the man continues, he

neighs aloud and in a peculiar tone, which rouses the herd, and all gallop away, the sentinel bringing up the rear. Nothing can be more judicious or rational than this arrangement, simple as it is. So a Horse, belonging to a smuggler at Dover, used to be laden with spirits, and sent on the road unattended to reach the rendezvous. When he descried a soldier he would jump off the highway, and hide himself in a ditch, and when discovered would fight for his load.—The cunning of Foxes is proverbial; but I know not if it was ever more remarkably displayed than in the Duke of Beaufort's country, where Reynard, being hard pressed, disappeared suddenly, and was, after strict search, found immersed in a water-pool up to the very snout, by which he held a Willow-bough hanging over the pond.—The cunning of a Dog, which Serjeant Wilde tells me of, as known to him, is at least equal. He used to be tied up, as a precaution against hunting Sheep. At night he slipped his head out of the collar, and returning before dawn put on the collar again, in order to conceal his nocturnal excursion. Nobody has more familiarity with various animals (besides his great knowledge of his own species) than my excellent, learned, and ingenious friend, the Serjeant; and he possesses many curious ones himself. His anecdote of a drover's Dog is striking, as he gave it me when we happened, near this place, to meet a drove. The man had brought 17 out of 20 oxen from a field, leaving the remaining three there mixed with another herd. He then said to the Dog, "Go fetch them;" and he went and singled out those very three. The Serjeant's brother, however, a highly respectable man, lately Sheriff of London, has a Dog that distinguishes Saturday night, from the practice of tying him up for the Sunday, which he dislikes. He will escape on Saturday night, and return on Monday morning. The Serjeant himself had a gander which was at a distance from the goose, and hearing her make an extraordinary noise, ran back and put his head into the cage—then brought back all the goslings one by one, and put them into it with the mother, whose separation from her brood had occasioned her clamour. He then returned to the place whence her cries had called him.—Lord Brougham.

Preservation of Birds.—From the readiness with which you give insertion in your valuable periodical to any matter, however trifling, which has for its object the advancement of zoological knowledge, I am induced to trouble you with the following remarks, which, though not of a strictly scientific nature, are sufficiently connected with it to be of interest to the ornithologist, and particularly to those who, either from pleasure or business, employ themselves in mounting the skins of dried specimens.

In order to get the dried bird into shape, it is necessary to relax the skin by the introduction of damp cloths or cotton; the rigidity of the feet and bill must also be removed by some similar expedient. This latter circumstance has given me great inconvenience, for in nine cases out of ten, when the wet cloths were removed, the claws and beaks crumbled into dust, leaving nothing but the naked

bone. I have coated them with varnish, with wax, and with tallow previous to softening, in order to prevent the water acting upon the gelatin, and thereby preserve perfect those organs upon which the genuine characters of many of the feathered tribes depend, but hitherto without success. Nor am I singularly unfortunate in this, as I observe specimens in the British Museum, the Zoological Society's collection, and indeed in every other museum I have yet seen, in this mutilated condition. This is much to be regretted, as whatever excellence the bird may possess as a preserved specimen, its beauty and utility are much deteriorated by the dusty and scaly appearance of its half-decomposed claws and beak.

If any of your readers are in possession of a remedy for this evil, the publication thereof would confer an obligation not only on myself, but also on others who I doubt not have equal cause for complaint.—Joseph R. Wallace, *Douglas, Isle-of-Man, Aug.* 19, 1839.

BOTANY.

"Botanical Lichens"!—The twenty-seventh number of "*The Analyst*, a Quarterly Journal of Science," &c., in a notice of *The Naturalist*, alludes to Mr. Edwin Lees' query in this Journal (Vol. IV., p. 206) respecting Bohler's "*Lichenes* Botanici"! (*Britannici*, we presume.) In the same article there are two other curious mistakes, viz., "*Tickleback*" for Stickleback, and "*mind*" for mud!—Ed.

Production of Cotton in England.—In July of the present year three Cotton-trees, in the garden at Northallerton Vicarage, shed their produce in abundance. They have been planted three years, but this is the first year that they have had produce.

GEOLOGY.

Geology and Scripture.—The Rev. Wm. Cockburn, Dean of York, and Mr. H. J. Francis have recently been engaged in a newspaper discussion on these subjects, but nothing novel or important has hitherto been elicited.—Ed.

Sam. Slick on Secondary Formations.—The clockmaker says,—"I never heard of 'secondary formations' without pleasure—that's a fact. The ladies, you know, are the secondary formations, for they were formed arter man."

A new Eastern County.—It is intended to improve the outfalls below the harbours of Lynn, Wisbeach, and Boston, and reclaim from the sea 170,000 acres of fertile land, as well as greatly to improve the drainage and navigation by the rivers Ouse, Nene, Welland, and Witham, in the counties of Lincoln and Norfolk. It is said this great work will add another county, and it is intended to obtain permission to have the reclaimed land called "Victoria County."

THE END.

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ERRATA.

P. 29, line 13 from the bottom, for "*Chyrsosplenium*" read Chrysosplenium.
P. 44, bottom line, for "*an*" read no.

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